DOMESTIC ENGINEERING

A Weekly Record of Progress in Plumbing, Heating, Ventilation and all Matters Pertaining to Domestic Sanitation

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The man who fails to keep in touch with the current events as they appear in the trade paper, is putting himself in the same position as if he were a purchasing agent for a business firm and failed to keep in touch with the daily market quotations. Every progressive master plumber or other individual connected with the trade in any way, should forego the reading of his daily newspaper until he has absorbed the necessary news in the trade press.

Thomas J. Claffy,
Asst. Chief Inspector, Sanitary Bureau, Chicago.

NO TIME TO READ A TRADE PAPER.

THE following dialogue took place between a master plumber and fitter in a large middle-west town and the traveling representative of a trade paper:

"Well, sir, how do you find business just now?" asked the trade paper man.

"Pretty slow, pretty slow," sighed the master plumber, looking up from the pages of a yellow newspaper that half-hid his face. "But things will pick up before long, I reckon."

"Taking any trade papers at present, Mr. ———?" the trade press man asked. "Every really progressive and up-to-snuff craftsman ought to make it a matter of good business policy to read what's doing in the trade from one end of the country to the other. To keep posted means progression and scope of vision."

"Well," chimed in the master plumber, "that sounds all right, but the devil of it is that I don't get any time to read a trade paper. I used to take one, but I hardly ever looked at it." (Consistency, thou art a jewel.)

This craftsman complained that he had no time to read his trade paper, the journal devoted to the interests of his calling, and yet he found time to read a newspaper, devouring greedily all the sensational news of the day. He also admitted that business was slow. Very well, if business is slow, then he certainly can find some time to "get wise" to what is transpiring in the trade. Why should he remain ignorant of the many vital things that are coming to pass in the world-wide realm of sanitary plumbing and heating?

A former treasurer of the National Association of Master Plumbers pounded his fist emphatically on his desk some time ago, when he heard it said that some of the boys in certain parts of the country were not reading any trade papers at all.

"Haven't time to read them?" he cried. "They seem to find time for lots of other things that are not bringing them in the shekels. I get thoroughly disgusted with the fellow who hates to spend a paltry bit of money for a subscription to a trade paper, and then thinks nothing of 'blowing in' a five-dollar bill treating the boys. The trade paper has ever been the loyal friend of the trade. It has boosted and rooted for us, and has helped to fight our battles for bringing about sanitary measures—laws affecting sanitation in our great cities and our growing towns. It has given wide publicity to our aims and policies regarding the use of sanitary contrivances for the comfort and health of the people at large. It has acquainted and is acquainting the master plumber with the new conditions and the new ideas that are springing up in the trade. It is putting him into touch with the doings of his brothers in other cities and states.

"No time to read a trade paper! This sounds feeble, lame and hypocritical. We certainly are not

living in the dark middle ages when most men were steeped in ignorance and apathy, and didn't care a continental about progression. No, we live in the great twentieth century when new things are coming to pass almost daily. The conquest of the air is almost an accomplished fact. Great and revolutionary inventions have been developed to enrich and enhance us materially and socially. New ideas are springing into being in every avenue of human industry. And yet there are men who call themselves up-to-date and progressive who actually have the nerve to admit that they do not read trade papers, because they 'haven't time to read.' That's pure bunkem. Wake up, you indolent chaps—and by the way, sneeze, or your brains will get dusty."

NEW YEAR'S NUMBER NEXT WEEK.

THE issue of December 27 is to be the annual New Year's Number of "Domestic Engineering." It will reach you at this time next week. We hope that you'll not be disappointed in what we have tried to make a most interesting and valuable number.

As this is being written (in the wee sma' hours), the work of preparation of a special issue of this sort, with the regular weekly issues coming regularly as clockwork, appears tremendous. Is it appreciated? Is it bringing to the readers the large measure of the value that the editor and his assistants mean to convey?

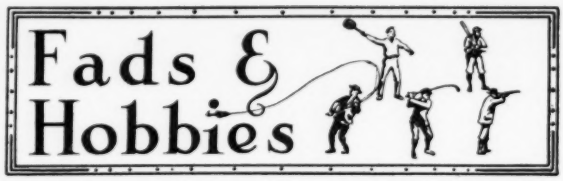
Last year the many words of commendation of the matter contained in the 1913 New Year's Number seemed to indicate a want well filled. This year we have tried to do still better. Tell us, after you have seen the issue, if we have succeeded. Won't you?

The editor asked Walt Mason, the well known writer of prose poems, to write for us something that would be appropriate. The result was "Doctor Plumber," which we consider by far the best thing he has ever done.

As you perhaps know, Walt Mason's poems are "syndicated" among the newspapers, and any newspaper desiring to publish any one must "come across" to the tune of $2.50 for the privilege.

Not so in the case of this poem. We want you to make use of it, and your local newspaper will be glad to print it without having to pay for the privilege. After you have read it you will see wherein it will do the trade, and incidentally yourself, good if it is published. Should your local association desire to have the poem and the illustrations reproduced over the signatures of the firms composing the membership, we can supply duplicates of the cuts at cost.

When you've finished with your copy of the New Year's Number, pass it around among the boys.



Invitations to Dinner.

It's a gay life, this business of being so popular that your friends are constantly slapping you on the back and ejaculating: "I say, old top, the Mrs. wants you and the wife to take dinner with us next Sunday."

Well, sir, some time ago, one of my journeymen who married a woman with pretty high-toned ideas, patted me on the shoulder and persuaded me to accept an invitation to dine at his house. My wife was included in the offer.

I had a presentiment that the dinner the journeyman was going to put up wasn't going to be any Vanderbilt or "Astorbilt" spread. I knew that my employe's money went to the "demnition bow-wows" every Saturday night when he turned the major part of it over to his extravagant wife. Most of the cash went for fine clothes for wifey and fine furniture for the household—as far as the eats were concerned, well, I was told that they were pretty sparing—they didn't overeat. No indeed. Wait till I tell you what my wife and I were "up against" when we sat down to that journeyman's festive board. Evidently my employe had some grudge against me and he thought he'd invite me to "dine" at his house. Well, he got even with me if that was his game in asking me.

When we were all seated at the table, Mr. Journeyman arose and said, smilingly, "Well, ladies and gentlemen, if you'll permit me, I'll deal and we can start to wrap ourselves around the eats." "Let her go Gallagher," quoth I.

Well, sir, by jingoes, when I gazed over at the turkey that "graced" the board, I felt a sinking sensation—I nigh fainted. There wasn't enough on that bird to feed a sick lizard. If I'd had a chance to whisper to my wife, I would have whispered: "My dear, take a slant at that turkey. I think it died of grief. I guess our host will pull that old stall about ordering two turkeys and only one came." Well, when we got outside, I took occasion to utter this observation to my wife. She laughed and said: "I'll bet they'll have a delicatessen menu the rest of the week after this 'bountiful' spread. Oh, well, they put their best foot forward, I suppose."

Our hosts appeared to feel that they were making a great hit with us. They smiled, swapped jokes and stories with wonderful equanimity and self-satisfaction. After we "finished our dinner," I heard my employe make some remark to the effect that he was afraid he had overloaded his stomach.

About a month after that notable dinner, my employe's cook and maid of all work, came over to see my wife about a position in our household. She said she had quit her job, because she didn't get her pay regularly, and when she did get it, her mistress would borrow half of it back before the next pay-day. "The madame owes me a dollar from last month," said the cook-servant, "and the worst of it all is, she didn't feed me properly," she went on. "I got skinny-looking working for her."

Well, sir, the trouble with the journeyman and his household was simply this: He lived above his income, and the consequence was, that the shoe was bound to pinch pretty tight in divers places. And then his wife was his master. She was the czarina, and she ruled him with an autocratic hand. She didn't know what economy meant, and she had no use for it.

Modern Practice in Heating and Ventilation

XI.—Forced Circulation of Hot Water in Domestic Heating Plants, Also a Brief Explanation of the Honeywell System

By ALFRED G. KING

IN ONE or two of the preceding chapters we have referred to the fact that the original pressure hot water system was designed and patented about the year 1831, by A. M. Perkins, of London, England. Not much was done with it at the time, as many did not consider it practical.

From that time until a period less than ten years ago hot water systems were usually classified as high pressure or low pressure, the low pressure systems—as we have illustrated and described—being those open to the atmosphere through a vent or overflow pipe. The old English practice of high pressure hot water heating, which we shall discuss later on in these articles, made use of extra heavy pipe and fittings and the work was constructed in such manner as to make it reasonably safe from fracture or explosion. The common American practice of placing a hot water system under pressure has been by sealing the system and using a safety valve on the overflow pipe, a custom which was dangerous owing to the fact that this valve and the expansion tank were usually located in an inaccessible position and therefore the valve was seldom tested to see that it was operative—in other words, to ascertain that it was not stuck fast by corrosion.

All sorts of patented valves have been employed for this purpose—some good and some worse than useless—and it was not until about eight years ago that a device was invented which, connected to a system of hot water heating, allows a nominal pressure to be maintained in an absolutely safe manner. This device holds a pot of mercury and it is connected to the expansion line. It is known as a generator.

Continual experimenting has given results which show that it is advisable to employ small piping and fittings, and smaller radiators for hot water heating when a generator is attached to the system, and by this means reduce by about one-third the amount of water formerly required in a hot water apparatus. The reduced amount of water is more quickly heated and with less expenditure of fuel or with an equal amount of fuel is heated to a higher temperature.

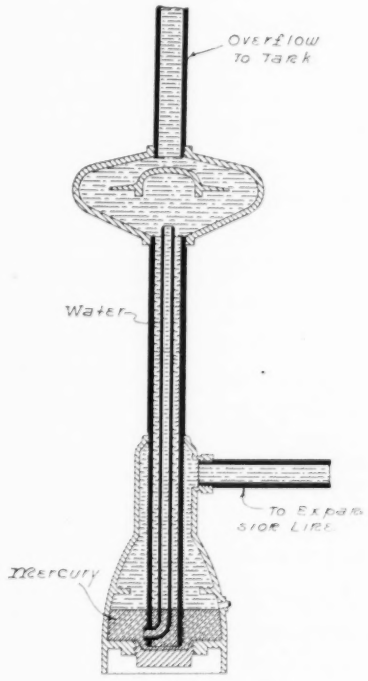


Fig. 1.

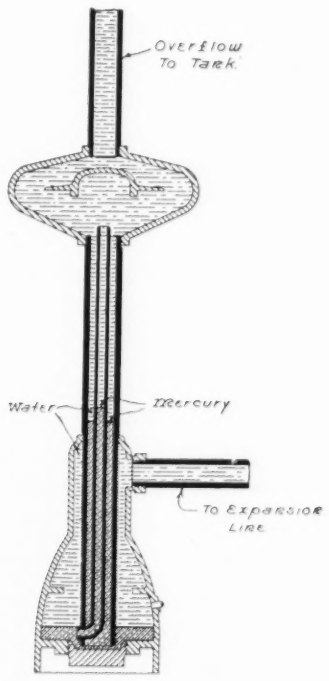


Fig. 2.

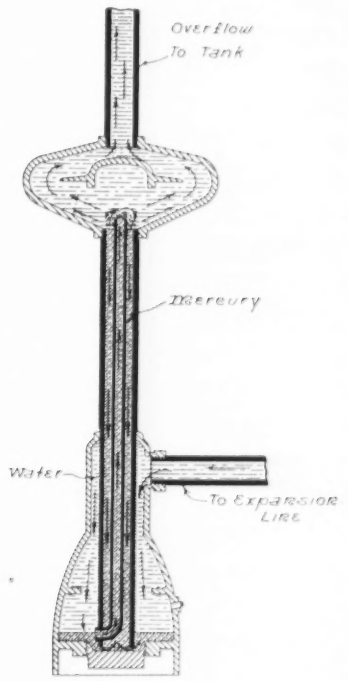


Fig. 3.

Certain methods are employed in installing the piping and in making the connections to radiators, with the result that when the device for maintaining a pressure on the system has been added to it, the circulation of the water through the apparatus is quickened or accelerated. By reason of this fact we have come to call this system an accelerated system of hot water heating and now classify hot water systems in three divisions as follows:

Open-Tank Systems.
Accelerated Systems.
High Pressure Systems.

In illustrating the accelerated system of hot water heating we shall refer to and describe the mercurial appliance patented by M. C. Honeywell, of Wabash, Ind.,

which without doubt was the original mercury seal device patented and placed on the market for attaching to a system of hot water heating, and which, together with a peculiar method of piping, is now known as the Honeywell System.

Mr. Honeywell conceived the idea that a trap filled with sufficient mercury to hold or maintain a pressure up to approximately ten pounds when placed on the expansion line between the system of piping and radiators and the expansion tank, would allow the water to be heated to a temperature of 240 degrees without boiling, and, having an outlet through the vent of the trap to relieve any excess pressure, would prove absolutely safe from the fact that it is impossible to close a hole or orifice with mercury.

Although hot water heating had been practiced in this country for many years there had been up to this time (1905) very little real improvement in methods of installation. With the advent of the generator, however, many changes in piping methods and improvements to other parts of the system were made.

Early experimenting proved the idea of employing the mercury trap to be correct but the first device employed in the experiments was faulty, in that as soon as an excess of pressure developed, or as soon as the ordinary pressure in the city service pipes was turned into the piping of the heating system, the mercury was lost or forced out through the vent of the trap.

In correcting this fault the idea of circulating the mercury within the appliance was thought out and perfected which gave to us the Honeywell Generator in practically the same form as it appears today. The mercury in the generator now acts as a cushion, allowing the maximum pressure to be maintained without undue strain upon the apparatus or the maintenance of a very slight pressure and consequent low temperature as the condition of the weather requires.

When attached to a hot water heating apparatus the generator will cause the circulation to be quickened or accelerated so that the velocity of the water in the system is considerably faster than in the old style apparatus, the velocity of the circulation depending upon the amount and temperature of the water in the system.

The old time hot water heating apparatus with large piping and excessive amount of water carried in the boiler and piping was slow to heat and unwieldly to operate in mild weather, causing overheated rooms owing to the fact that the temperature of the water could not be quickly regulated. The old-style job also necessitated the burning of considerable fuel before any warmth was apparent in the radiators.

The economical feature of hot water heating may be stated as follows. The more water that can be passed through a boiler and heated with a given amount of fuel or the hotter the water can be made by burning a given amount of fuel, the greater is the economy or the return from the investment, and the hotter the water is returned to the boiler, the more quickly it is reheated and again put in circulation.

The results obtained from an accelerated system seem to show that the generator brings a fulfillment of the economical features as noted. The quickened circulation, the absorption of a greater number of heat units from the coal consumed, the delivery of these heat units quickly to the distributing points—the radiators—with very little loss in temperature enroute, and the perfect circulation of the water at low temperature through radiators located at the extreme ends of the piping system, which under old conditions would receive very little if any heat, are all points of efficiency and economy found in an accelerated system.

At this point it may be well to say that we believe that practically all of the accelerating devices on the market will improve the circulation when attached to a hot water system.

No doubt the greater number of our readers are familiar with the appearance of the Honeywell Generator, and yet there are many who do not understand its construction and the reasons why it is so effective.

Three views of the inner construction of the generator are shown in Figs. 1, 2 and 3. Fig. 1 shows the position of the mercury in the generator when there is no fire in the boiler or when the water is cold. At this time there is simply a mercury seal or a pot of mercury—about 3½ pounds—in an inert state between the heating system proper and the expansion tank. If, when the apparatus was fired, this mercury would remain immobile or motionless the seal would act exactly as a safety valve set to open at a pressure of ten pounds. Under such a condition, with no chance to circulate, the opera-

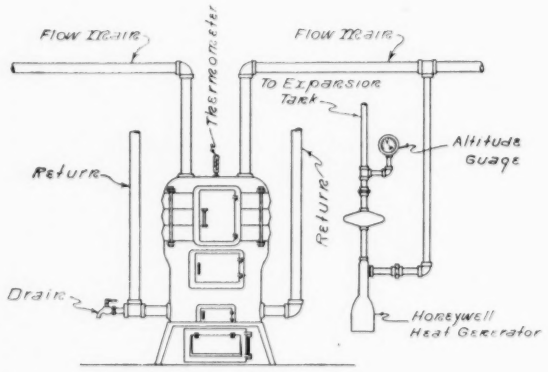


Fig. 4.

tion of the valve or seal—when sufficient pressure had accumulated to break it would be to relieve the pressure on the system by allowing a certain portion of the excess or expanded water to enter the tank, and when the water was cooled a partial vacuum would be formed in the piping and radiators at the top of the system.

Fig. 2 shows the approximate position of the mercury in the generator when there is five pounds pressure on the system. The pressure due to the expansion of the water in the system is exerted against the mercury in the pot of the generator over an area of approximately 12.56 sq. in., the area of a 4-inch circle, which is about the measurement of the inside of the lower pot of the generator, less of course the area of the connecting or stand pipe which is 1.05 sq. in. (a ¾-inch pipe). The pressure exerted forces the mercury up the circulating tube and stand pipe to the point shown on the illustration.

When the pressure on the system has reached ten pounds it has forced the mercury over the top of the circulating tube and to the top of the stand pipe as illustrated by Fig. 3, and the generator is then in full operation circulating the mercury within the same as shown by arrows on Fig. 3—up the center tube and down the stand pipe. The pressure has lowered the mercury below the end of the circulating tube and water of expansion now enters it and passes upward with and through the mercury, and having reached the separating chamber the mercury (owing to its greater density) drops down and

returns through the stand pipe to the chamber at the bottom of the generator, the excess water passing to the expansion tank. A baffle cast in the interior of the top or separate chamber of the generator prevents the loss of mercury due to any sudden rush of the water, as for example would be the case when filling or adding water to the system from a pipe having city or tank pressure on it.

The position of the generator should be at the bottom of the system or in the basement near the boiler. It can be located immediately under the expansion tank or at any point between boiler and expansion tank provided there is sufficient height between it and the tank or about 2½ to 3 feet. It is best, however, to locate and connect it as illustrated by Fig 4. Unions should be employed in connecting the generator to the piping system in order to avoid loss of mercury after the plugs (inserted at the factory for shipping) have been removed from the openings provided for expansion and tank connections.

The Honeywell System of accelerated hot water heating consists not alone of the use of a generator but also the employment of a certain well reasoned method of piping and of making connections to the radiators.

We shall illustrate and explain many of these methods in the succeeding chapter.

NATURE'S CALL.

An actual experience of a Master Plumber Santa Claus.

By William Jacobus.

He'd hired the rig, 'twas Christmas Eve,
Had everywhere to go,
To leave the load of children's toys,
As others have, you know.

The old horse did his level best;
The last load had been left,
And homeward turned, all back again;
The promise had been kept.

Just half way back the nag slowed down,
The bitter cold cut through;
And the driver yelled, "G'lang—gad-dap"
Through lips all stiff and blue.

The horse's body shook, just a bit;
Then on his flank fell whip;
Up his heels, and the rig was tossed
Just like a rolling ship.

Another step or two he went,
Again the stinging whip,
But then the rig went mountain high,
Then down that awful dip.

"Your own way, then, you ugly brute;"
The maddened driver cried,
And then fast dropping, told the tale;
And then fast droppings told the tale;
Why that old "hoss" had shied.

A lawyer had a horse that always stopped and refused to cross the bridge leading out of the city. No whipping, no urging, would induce him to cross without stopping. So he advertised him—"To be sold for no other reason than that the owner wants to go out of town."

Life.

As a master plumber, I am a man of pretty keen insight into matters and things. At least I think I am. You know the good book says: "As a man thinketh in his heart, so is he."

Every now and then, I have a thought that is a thought—a brilliant mental impression that I sometimes half suspect savors of genius.

For instance, the other day, my helper, Pat Hogan, and I were coming along a very aristocratic street. Hogan, by the way, is no fool. He's got a pretty bright nut too—that makes two bright nuts, you see.

We observed the mansions of the rich, gracing the avenue on all sides. Five minutes later we turned down a street that had the evidences of poverty and human woe stamped plainly upon it. What a marked contrast to the other street. Dirty, dingy looking little cottages and tumble down shacks, and muddy, garbage strewn pavements conspired to pain the artistic eye. Not one single touch of harmony or beauty to be seen anywhere.

Here, indeed, existed the poor of the city, the underdogs of society. Hogan grew sentimental. Said he: "In the cradle and the grave we are, so to speak, equal, but the inequality is in between. Why in the scheme of things is one human being fore-ordained to sit on a throne and another to squat on a rickety tenement stool?"

"Well, Pat," said I. "You forget that life is like love—it's a gamble. A kid is born into this world. He hasn't the least idea what's coming to him in the future. He may become president of the United States or he may develop into a bum and a loafer. And then again a man gets married to a girl. Little does he know what the years have in store for him. He may become the happy papa of cooing twins or handsome triplets or he may be doomed by the grim irony of fate to wake up and find himself the henpecked and childless mate of a militant suffragette—she'll make him suffer, you bet.

"Take it from me, Hogan. Everything connected with life is a gamble. Edison says life is electricity, but I say it's a gamble. There's where we disagree, you see."

"You're right, alright," interrupted my helper. Said he: "Even a man's sense of hearing is a gamble. Sometimes you hear and sometimes you don't hear. Why the other day a friend of mine asked me to have a drink and pon my soul, I failed to hear him. Bad bit of luck that was."

I then told Hogan how a journeyman, who once worked for me, made the horrible discovery that life was a gamble. The journeyman came to me and told me he was quitting his job. He said that he had met a German heiress who wanted to get married. She had told him he wouldn't have to work another day. He married her alright—he did that sure enough and he didn't have to work another day either, for you see, she right off got him a job as a night watchman in her father's sauerkraut factory. This unfortunate journeyman complained to me one day as I met him on the street. "Life is such a gamble," was the burden of his song. "Who knows now how long I'll have to wait before that old dad of hers hands in his checks to his Royal Nibs, St. Peter. Until he does cast off his mortal coil, your humble servant will have to stick to the night watchman job."

Water—Its Properties and Practical Uses

XXI.—The House Drain and the Connections to the Sewer Subsoil Drains and Cellar Drainers—Their Installation

By F. W. TOWER

House Drain.

THE flow from all soil and waste pipes is usually concentrated into one main drain, termed the *house drain*, when within the building, and assists the cleansing and scouring of the interior, as much as is possible to prevent accumulations of solids.

The scouring force of a drain is greater when the pipe diameter is as small as consistent with the needs of a building, the chance for obstruction being less, as the greater the speed the greater the pressure.

The proper diameter of pipe to be used requires careful consideration, also the grade, or proper inclination.

The diameter should be large enough to carry the largest quantity of water that would be required, and yet not so large but that the ordinary flow will float the solids and refuse.

A drain running two-thirds or three-fourths full, is much more efficient than a larger one running only one-fourth or one-half full.

When the depth of water is low in a pipe it lacks the scouring or cleansing power needed to keep the pipes clean.

The cleaner the interior the less odors are made.

If the volume of water is not deep enough the solids touch the bottom and sides, the water flows away, leaving the solids lodged in the pipe to give off bad odors

A velocity of 275 ft. per minute has been found to be desirable to clear all drains of solids and refuse and a fall or grade as per table, produces the desired grade or inclination.

In the following table, the proper grade to be given varies with the diameter, and is the greatest for the smaller diameters.

A 12 in. fall in 20 ft. of a 2 in. pipe equals 275 ft. per min.
A 12 in. fall in 30 ft. of a 3 in. pipe equals 275 ft. per min.
A 12 in. fall in 40 ft. of a 4 in. pipe equals 275 ft. per min.
A 12 in. fall in 50 ft. of a 5 in. pipe equals 275 ft. per min.
A 12 in. fall in 60 ft. of a 6 in. pipe equals 275 ft. per min.
A 12 in fall in 70 ft. of a 7 in. pipe equals 275 ft. per min.
A 12 in. fall in 80 ft. of a 8 in. pipe equals 275 ft. per min.
A 12 in. fall in 100 ft. of a 10 in pipe equals 275 ft. per min.

When the number of feet per minute that a body of water moves in a pipe, is known, to compute the number of gallons, proceed as follows:

Ascertain the area by squaring the diameter, and multiply by 0.7854, which gives the area, as tabulated below.

Multiply the area by the fall, or grade, then this amount by 275, the velocity per minute, and divide this result, or the cubical contents, by 231, the number of cubic inches in one gallon.

The result will be the number of gallons flowing through the pipe, full bore.

The table of pipe areas given below are quite helpful in saving time in computing.

The area of a	1	in. pipe, equals	0.7854	inches.
The area of a	1¼	in. pipe, equals	1.227	inches.
The area of a	1½	in. pipe, equals	1.767	inches.
The area of a	2	in. pipe, equals	3.1416	inches.
The area of a	2½	in. pipe, equals	4.908	inches.
The area of a	3	in. pipe, equals	7.068	inches.
The area of a	3½	in. pipe, equals	9.621	inches.
The area of a	4	in. pipe, equals	12.566	inches.
The area of a	4½	in. pipe, equals	15.904	inches.
The area of a	5	in. pipe, equals	19.635	inches.
The area of a	6	in. pipe, equals	28.274	inches.
The area of a	7	in. pipe, equals	38.484	inches.
The area of a	8	in. pipe, equals	50.265	inches.
The area of a	10	in. pipe, equals	78.54	inches.
The area of a	12	in. pipe, equals	113.09	inches.

The pipe sizes are not given larger than 12 in., as any building requiring larger sizes should have more than one sewer connection, preferably several smaller ones.

Many cities install a 6 in. pipe from the street sewer to the building, when such building has the average number of plumbing fixtures, roof area and yard area.

Inside a building a pipe 4 in. in diameter is usually installed, generally proving adequate for all the needs of the average building, including the rain water disposal.

It is assumed that a pipe 6 in. in diameter will prove amply large, even if some extra fixtures or an enlarged roof area were to be added to the ordinary conditions.

Assuming that an ordinary building has three baths, three water closets, three lavatories, three sinks, three sets laundry trays, and a roof area of 80 ft. by 60 ft., how could the diameter of the house drain to convey the flow from the above, be determined?

Estimating that the discharge from them would be, for a

Water closet	..... 6 gals.	each, or	18
Bath tub.	.....30 gals.	each, or	90
Lavatory.	..... 2 gals.	each, or	6
Sink	..... 2 gals.	each, or	6
Laundry trays	.... 4 gals.	each, or	12
A total of....			132 gals.

It is assumed that the discharge will take place at the same moment, although only *one-fourth* of the fixtures can be considered as discharging at the instant.

If the fixtures are on different levels, as on the various floors, and being separated by the height of different stories, it would be perfectly safe to calculate that *only one-fourth would* be discharged into the *house drain*, or require only one-fourth of the 132 gals., to be provided for at any one moment.

To obtain the capacity for the 132 gals., by referring to the table of areas, a pipe 3½ in. in diameter would deliver 137 gals., worked out as follows: Applying the rule, square the diameter, by multiplying it by itself, thus, 3½ by 3½ equals 12.25 by 0.7854 equals 9.621 area; this area to be multiplied by the grade, 12 in. equals 115.452, this amount multiplied by 275 ft. velocity per minute, equals 31,749.300 cubic inches.

Divide this amount by 231, the number of cubic inches in one gallon, and the result is 137.44 gallons.

The operation may be expressed as follows:

$$\frac{3.5 \text{ by } 35 \text{ by } 0.7854 \text{ by } 12 \text{ by } 275}{231} \text{ equals } 137.44.$$

This gives the capacity of a 3½ in. pipe discharging full bore for the fixtures only, a surplus of 5.44 gallons for a factor of safety.

As a three in. pipe would be too small, and as there are no 3½ in. soil or drain pipes used, a 4 in. pipe would be installed, allowing ample capacity.

If only one-fourth of the 132 gallons would be discharged at once, the diameter could be reduced to a 2 in. pipe, the capacity being worked out as follows:

$$\frac{3.1416 \text{ by } 12 \text{ by } 275}{231}$$ equals 44.8 gallons, the diameter required for the fixtures.

No estimate has been made, as yet, for the roof flow.

The area of the roof, 80 ft. by 60 ft., equals 4,800 ft.

The rule for estimating roof areas is as follows:

"One square inch of area in a leader pipe will drain 250 square feet of exposed surface."

Applying the rule, 4,800÷250 equals 19.2 in. required in the leader pipe.

Referring to the table of areas, we find that a 5 in. pipe has 19.63 in., and would be sufficient to convey the rain water from a roof the size estimated.

The capacity of the 5 in. pipe being 280.4 gallons, by adding the 44.8 gallons, the capacity of the 2 in. pipe, or one fourth of the fixtures discharging at the same moment, the total number of gallons to be provided for would be 325 plus gallons.

This would not fill a 6 in. pipe, the capacity being 403.94 gallons.

A 4 in. pipe could be installed for the use of the plumbing fixtures, branching to a 5 in. pipe which cares for the rain water.

With no rain water flowing, the 4 in. pipe would be ample even if all fixtures discharged at the same moment.

If a 6 in. pipe were installed, both rain water and fixture waste would be amply provided for, but much too large to obtain good cleansing effect when only the fixtures were being used.

It could be safely assumed that a 5 in. pipe would be ample to care for the combined flow from the building as described.

House drains should be made of cast iron, and preferably of plain, extra heavy weight.

A cast iron pipe depends, for its strength and freedom from flaws and sand holes, upon the accuracy of the casting, and the extra heavy pipe is more liable to be cast with its shell of even thickness, with less liability of having cracks, flaws or sand holes, than the standard grade, which is much thinner and more brittle.

With extra heavy cast iron pipes, well made joints, properly tested, it is perfectly safe to bury the drain pipes, but providing suitable cleanouts at all changes in direction, and making such cleanouts easily accessible for inspection or repairs.

Acids, steam or very hot water should not be discharged into an iron drain.

For acids, a separate vitrified pipe drain should be provided, as both iron or brass are badly affected, the acid eating holes rapidly, thus destroying the material.

Steam exhaust should drip and discharge through a cooling coil, or condensed trap, before entering a drain, as leaded joints would become loosened by shrinkage, and leaks would become dangerous, admitting the passage of both air and water.

When extreme hot water is unavoidable, a rust joint should be made.

Rust joints are made of sal-ammoniac and iron filings, free from oil, made into a thick paste.

The joint is packed with oakum, as with a lead joint. After being well tamped, force this paste into the joint carefully and firmly.

After setting the material makes a strong connection with the iron composing the drain, and a reliable joint that resists the action of steam.

Leaded joints are required in all ordinary cast iron connections, and are made by inserting the spigot end into the bell, having the bell thoroughly dry and clean.

Any moisture will cause trouble, and may require the repouring of the joint, as the moisture will blow out the lead filling when in a melted state.

Use oakum for the filling to prevent the entrance of lead into the bore of the pipe.

Insert the oakum on the under side of the joint first, to assist in keeping the spigot end centered with the bell end. thus avoiding the necessity of wedging the spigot end after once being placed.

Drive the oakum into place solidly, lapping ends to avoid coming opposite each other.

Begin driving at the bottom of an underhand joint, as the pipe tends to settle, and thus cause the lower half of the joint to be thinner.

Allow half of the depth for the lead filling.

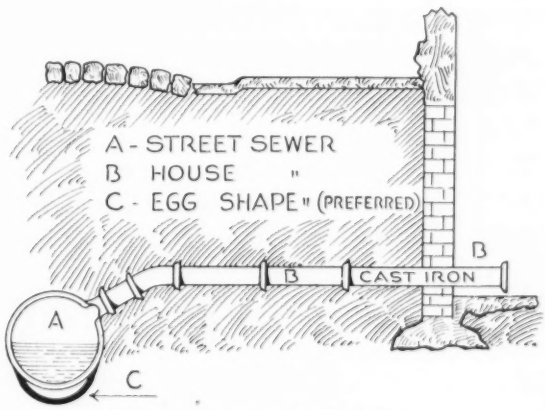


Fig. 1. Typical House Drain.

For underhand pouring, a dam of some kind must be used to confine the lead in its proper place, and clay, putty, or a patent runner, of asbestos, is used, while the pouring is made from the top of the joint until the hub is completely filled.

To flow well, the lead should be as pure as procurable, and hot enough to quickly char a stick or brown paper.

If too hot it will burn the oakum.

Use enough lead to fill the joint at pouring.

A little powdered resin placed in the gate or filling hole, when pouring, will help the lead to flow smoothly, and prevent "blowing out," if the pipe is damp.

As the lead shrinks after cooling, it is necessary to set the lead firmly against the walls of the pipe, both bell and spigot ends.

Tools termed calking tools are used, and tamping or pounding from the bottom of the joint *up*, is the better way to tighten an underhand joint. With upright joints, the lead runner is not required, as the hub holds the metal by gravity.

The weight for cast iron drain pipe should be as follows:

Average weight, extra heavy, in.	Pounds per foot.	Pounds per length.
2	5.5	27.5
3	9.5	47.5
4	13.	65.
5	17.	85.
6	20.	100.
8	33.5	167.5
10	44.	220.
12	54.	270.

All pipe lengths are 5 ft., including the hub.

Both pipe and fittings are also made in what is termed standard weight, which is much less reliable, due to the difficulty in procuring equal thickness to the shell when pouring the casting.

When changes in direction are made in drains, Y fittings should be used, as they do not reduce the flow as more abrupt angle fittings, and cleanouts should be inserted in each, to assist materially in giving access to all parts of the piping, for repairs, cleaning, or inspection.

Cleanouts suitably placed prevent breaking into the pipe or breaking up the cement flooring.

Leader or conductor pipes, when inside a building, should be of cast iron and trapped.

The trap should be accessible, located so as to be protected from freezing, and of extra depth, to maintain a water seal as long as possible, as during a dry period evaporation is taking place.

Yard and area drains should be effectively trapped, and provided with a receptacle to retain sand, grit, etc., for easy removal.

The *yard* drain is intended for surface water and usually placed at the rear of the building to collect surplus water and prevent its collection about the walls of the building.

The *area* drain is placed in front, in a city lot, to provide suitable drainage in connections for any surplus water liable to collect and damage the walls.

Subsoil Drain.

Buildings located on low ground, or in a clay soil, are peculiarly liable to be troubled with surface water collecting in the cellar.

This causes the cellar air to remain damp.

Cellar air will pass through the floors and partitions, bringing the unpleasant odors into the living rooms.

Cases are not infrequent where accumulations of water have caused the boiler or furnace pits to fill, and reach the fire pot, thus requiring the fire to be put out.

To avoid damp cellars, or the entrance of water, the proper time to guard against it is when the foundation walls are being laid, as then a suitable drain can be easily laid below the level of the cellar or foundation walls.

This part of a drainage system conveys the water from the foot of walls, or below the cellar level, to the house sewer, but independent of the house drain.

Drain pipes may be, and usually are, laid outside in a trench dug below, but near the level of the walls, the joints of the piping being loose and not cemented.

The illustration indicates the sub-soil drain, collecting pit, and connection with the street sewer.

A, illustrates sewer, too high for sub-soil water to flow into it by gravity.

B, sub-soil drain of horseshoe tile with open joints, such joints allowing the seeping of the water into the piping, and then flowing into the well.

C, the collecting pit or well, and drainer.

D, discharge pipe from well to sink.

E, waste to drain, with trap and continuous vent.

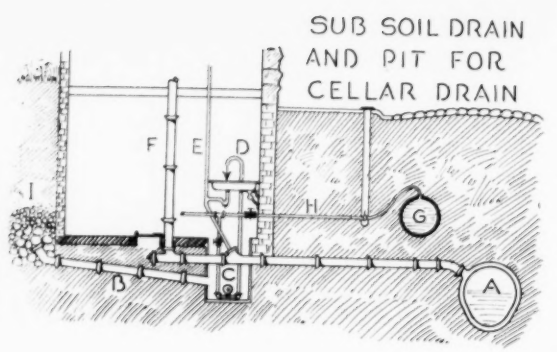


Fig. 2. Subsoil Drain and Pit for Cellar Drainer.

F, soil pipe extension from drain through roof.

G, street main, water supply.

H, service pipe to building.

I, filling of coarse gravel, sand and cinders around horseshoe tile to prevent chokage.

In the trench with these pipes place loose gravel, cinders, or broken stones, to filter the water and prevent stoppage of the drain by fine sand, as this drain is not easily accessible.

The object of this is to collect the water in and around this drain, instead of reaching the walls of the building, or leeching into the cellar.

Similar pipes could be laid within the building, if springs were opened when the cellar was being excavated, and it became necessary to dispose of surplus water.

The outlets for these sub-soil drains are easily connected when the sewer, or house drain, allows a gravity fall, as then a water-sealed trap with a back water valve may be branched from the house drain, and if the flow in the sub-soil drain was intermittent a rain water leader might be connected to such trap to maintain a water seal.

The back water valve is a form of check valve, used to prevent water in the street sewers, or drains, from backing up into the house drains, or any of its branches, which is liable to occur during a heavy rainfall in the combined system of sewers, if the sewers are too small, or there is too little grade.

In this position, the sub-soil drain branch, this style of valve would be reliable, as nothing but clean water flows through it.

Unless absolutely necessary, the installation of this valve is not advisable on a house drain, as it checks the solids, permitting only the fluids to pass.

Unless an unusually good fall is provided in the drain, chokage is liable to occur.

Cellar Drainer.

Frequently the level of the cellar floor is below the drain level, and then the sub-soil water cannot discharge into it by gravity.

Various methods may be used, such as a pump, etc., but an automatic machine, called a cellar drainer is usually preferable, because no attention is required.

This machine may be placed in a well or pit where the water could be collected.

This machine is operated from the water supply, the pressure of which should be not less than 25 lbs. per square inch, to give satisfactory service.

The supply being connected, the action of the drainer is similar to that of a ball cock in a tank, and operates to open the supply when the well has filled to the adjustment of the machine.

When the float opens the valve, a jet of water is forced through a contracted opening near the branch extending into the well, as shown in the illustration, with strainer attached at its lower end.

This jet, due to the high velocity of the flow, creates a slight vacuum at the point where the jet discharges, thus reducing the normal pressure of the atmosphere.

The air pressing on the water in the well immediately forces the water that is below the jet opening to fill the unbalanced air condition thus produced, and the jet action moves the body of water away and upward to the point of discharge, provided the vertical lift will not exceed 10 ft. or less.

When the well is nearly empty, or the body of water removed from under the float, or cylinder, the float drops, shutting off the water supply until the filling of the well renews the operation.

A foot valve is placed just above the strainer in some makes of cellar drainers, thus the suction pipe holds the wafer up to the level of discharge, economizing somewhat in the use of the high pressure water.

With this machine, the combination of air and water, applied effectively, makes a simple and automatic device for lifting water to the level necessary to obtain a gravity fall, and removing all accumulations with comparatively low cost.

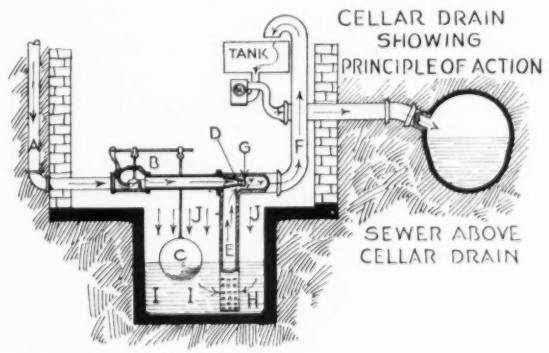


Fig. 3. Principle of Cellar Drain.

The illustration shows the operation.
A, supply to automatic valve.
B, water valve with lever arm.
C, float operating lever and valve rod.
D, jet tube into suction and delivery pipe.
E, suction pipe with strainer at bottom.
F, discharge tube to trapped fixture.
G, point where vacuum is formed.
H, strainer on suction pipe.
I, collecting pit or well.
J, arrows indicate atmospheric pressure.

A CONSUMER'S VIEWS ON SALESMANSHIP.

I am not a salesman. But I am a good buyer, and have probably purchased more things that I did not want than any man of my age. Hence, it may be interesting to salesmen to listen for a brief spell to a consumer's idea of what constitutes good salesmanship, writes Dr. Frank Crane.

First of all, be good-natured. I here and now confess that nine-tenths of what induces me to buy is the ability of the seller to jolly me along. Cheerfulness and signs that you feel good, enjoy life, and are full of glee inside, are better than a letter of introduction from Mr. Rockefeller.

Have a thorough knowledge of your goods, also of the other fellow's goods. Learn how they are made and when and who makes them. Respect your customer's desire to know and fill him up with information.

Don't argue. State facts. Don't arouse opposition in the buyer's mind. Agree with him, or dodge the issue. Lead him around to some subject where you are at one. I hate to have a seller try to prove to me I'm wrong. Perhaps I am; but I don't like to admit it.

Use plain language. If you are selling automobiles don't talk about carburetors and reciprocating dudads and compound thingumbobs. Go somewhere and learn the English for these things, and how to make them clear to a washwoman. Never use a term when there is any doubt whether the customer understands it. We don't like to be made to appear ignorant.

Tell the truth. If you are with a firm where you dare not tell the truth, leave it. Be candid. Do not conceal things. The thing you have to sell has certain merits; it ought to sell on those. To sell a thing upon merits it does not have is poor policy.

Be dependable. Even if you make a casual remark, for instance, that you will send a man a bunch of blotters or a book or a calendar, don't fail to do it. Forgetting is almost as bad as lying. If you promise to come back next Tuesday, do it or send a telegram. Create the impression that you will keep your word if it bankrupts you.

Remember names and faces. If you are not gifted in this respect, get a little book and every evening set down the names of the people you have met and some distinguished characteristic of each of them. Write down any remarks your customer has made about his family. Study this. It's all a part of the important art of jollying us along.

Have a good appearance. There may be a few people left who like to see a dirty shirt and frayed cuffs, but they are growing scarcer every day.

The art of salesmanship begins in the mind. Think success, think confidence, think a thousand dollars. Why think fifty cents? These thoughts in your brain will ooze out of your face. You will radiate these qualities. The greatest factor in selling is personality. And personality is made by thoughts.

Avoid personal intimacies. Let me talk about myself, and look interested while I am expanding. But don't speak of yourself any more than you can help. Take an axe and chop the pronoun "I" out of your vocabulary. What do you care? Jolly me along.

In fine, be as human as possible. You are not a catalogue nor a printed circular. You draw wages because you are supposed to be a human being. Be it! Don't be huffy, sensitive, impatient, dictatorial, indifferent, egotistic, or mechanical. Be a good fellow. Be of the kind many people like to have around.

When you attack a customer aim two inches below his collar bone. If you can make him like you it is far and away better than to try to prove anything to his mind. Very probably he hasn't much mind to speak of. But we all have hearts.

Jamestown, N. Y.—Chatfield & Sharp, successors to the old established firm of Chatfield & Armitage, of 304 Pine Street, are altering and improving their establishment. A modern show room for plumbing fixtures will be among the improvements planned.

Some Points on Practical Ventilation

Wm. J. Baldwin, Who Has Given Much Thought to This Subject Brings Out Some Timely Thoughts For the Heating Contractor

PURE food, pure water, and pure air are three elements, each of which is essential to the health of any community. While the federal government is doing much to regulate the quality of food supply and municipal departments endeavor to provide a sufficient supply of pure water regardless of expense, no one seems to bother much about the quality of air which people are obliged to breathe.

We of today now all understand the bad effects of impure food and bad water supply, while perhaps the more dangerous results from impure air are appreciated by only a few. It is well known that fish will not live in contaminated waters. The lower Hudson, around the Battery, is so polluted that it is now practically uninhabited by fish. A somewhat similar condition exists in a room, office or other enclosure where no mechanical means of changing the air is provided. How can we hope to live and keep in good health in an atmosphere which is not much better than the polluted river? We insist on cleanliness where our food and water supply is concerned, and yet we seem perfectly contented to sit in an atmosphere where the air has been inhaled, exhaled and reinhaled by every other person in the room. We take into our lungs vitiated air with all its impurities and scarcely realize what we are doing. Pure air is composed of about 73 per cent nitrogen and 23 per cent of oxygen, which in any enclosure quickly becomes vitiated by respiration, gas lights and in many other ways. As carbonic acid is produced by respiration and in other ways, and organic impurities fill the atmosphere of a room, the percentage of bacteria always increases very rapidly, so that the air in the rooms under such conditions, becomes actually poisonous in a very short time. In summer when windows can be left opened all day, a sufficient change of air can generally be maintained. It is during inclement weather and the cold months of the year, when windows must be kept closed, that mechanical means of changing the air becomes necessary. As municipal departments generally pay little or no attention to this important subject of ventilation, with the possible exception of the board of education, it is necessary for employer and employe to look at the subject from two viewpoints; one that of the necessity for ventilation, and, second, whether it is profitable to provide ventilation. Because of the impurities thrown off by the body, the excess of carbonic acid, moisture and heat and the excessive percentage of bacteria in the air of a room where people are confined, it has been found that between 1,500 and 2,000 cubic feet of air per person per hour is necessary, when doing light work. When windows are closed tight it is impossible to get a sufficient quantity of air into a room by leakage alone. If, however, the windows are fairly loose, so that more than the average amount of air leaks through the crevices, it may be safe to say that if there is not more than one occupant to each outside window that mechanical means of ventilation may be dispensed with, provided the air is not vitiated in any other manner except by respiration. The average leakage through an ordinary tight slide sash window is about 40 cubic feet of air per hour per lineal foot of sash crevice, in winter weather, so that a window 4 feet wide by 8 feet high, with slide sash, will leak approximately 1,200 cubic feet of fresh air per hour. If there are more occupants than one to each window, mechanical ventilation is invariably necessary, to maintain a proper standard of purity. This is a fairly accurate means of determining whether mechanical ventilation is required. When an enclosure has been occupied for a short space of time the first indications that the air is vitiated are complaints from headaches, and a sure sign is the lackadaisical manner of those obliged to inhale the impure air for even a short time. If there is a tubercular person in such an office, the air which he exhales from his lungs must be reinhaled to some extent by everyone else in the same room. It certainly is no great wonder that tuberculosis and other contagious diseases are contracted by people apparently in good physical condition, when they are obliged to live in such a vitiated atmosphere full of bacteria and unhealthy organic matter. If we cannot view this subject alone from the health standpoint, why not let us do so from that of economy? It can be made a profitable investment to install a ventilating apparatus in any enclosure where a number of people are obliged to be confined in close proximity to each other, for any great length of time. A person can do more work and more effective work in an atmosphere of pure air than in one where the air is vitiated. It may be difficult to accurately estimate the increased percentage of efficiency of a person working under healthy conditions, but there can be no disputing the fact that such is the case. Assume than an employe will do even 5 per cent more work or more effective work under good conditions of ventilation, the investment for a ventilating apparatus is a profitable one. Take an office with, say, fifty occupants and assume we supplied each occupant with 1,500 to 2,000 cubic feet of fresh air per hour, or a total of 75,000 to 100,000 cubic feet of air per hour. The cost of moving this quantity of air by means of an electrical driven fan and the cost of warming the air in zero weather to 70 degrees, plus the interest on the investment and wear and tear on the apparatus, would not exceed $1 per day in many cases. Making a total expenditure of, say, 2 cents per day per person as the cost of ventilation. Surely this must appeal to the thinking business man.

While our schools, hospitals, high-class theaters and other public and semi-public buildings are fairly well ventilated the average commercial building, including banks, printing establishments, factories and innumerable other classes of buildings, have no means of changing the air in winter weather. This subject deserves serious thought, not alone from the standpoint of health, but that of practical economy. An employe is justified in expecting or demanding a healthy place to work in, and it can be made a source of profit to the employer to provide such a place for his employes.—Exchange.

Watertown, S. Dak.—Kintsley & Fischer have moved their plumbing business from the Foley Block to the new Cannon Building on South Midway.

Crawfordsville, Ind.—J. N. Dickerson has just sold his plumbing and heating business, known as the Crawfordsville Plumbing Co., to Omar A. Larrick. The establishment is located at 203 South Washington Street.

Business Methods for the Plumber and Fitter

The Use of the Job Order Book—Necessity of Purchasing Order Forms in Duplicate, With Examples of Actual Form

By WESLEY A. FINK

ORDERS for jobbing or contract work in a plumbing shop should be given a job order number if they are to be properly traced or not overlooked. The workmen should charge the materials used and the time consumed to the name and order number of the job.

This is easily done by simply submerging the jobs consecutively as they come in. Every man in business of course has an order book, and the numbering of the jobs is a simple matter. In some shops the contracts are given a separate set of numbers from the jobbing work; the contracts may be numbered 1 to 999, and the jobbing and extra work from 1,000 up; but this is unnecessary, and to number the orders consecutively as they come in is more simple and less liable to confusion.

In Fig. 1 is shown a sample form of job order book:

Date	Job No.	Customer's Order No.	For whom	Location	Description of work	Date Billed
10-1-13	41	158	Energetic Trust Co.	Jno. Doe, Ten. 141 Franklin St.	Repair water Closet in bathroom	10-4-13
10-2	42		Jno. Brown	140 Brown St.	Clean out sink waste	10-3
10-3	43		Wm. Smith	517 Market St.	Repair gas leak	10-5
10-4	44		Geo. Allen	1840 Brown St.	Rewasher spigots	10-4

Fig. 1.

When a contract is undertaken and any sub-contracts are received on account of the main contract, separate order numbers should be taken out for the sub-contracts, if it is desired to keep separate costs of the sub-contracts. Likewise, if there is any extra work done on contracts, separate order numbers should also be taken out so that proper record can be made of the materials and time consumed on the extra work.

As the jobs are completed the date of billing should be entered in the outer column so that no job may be overlooked.

The plumber who does not keep an order book, but carries all his jobs in his head or in a small book carried around in his pocket, gives more money value to his customers for work which is done but forgotten and never charged for, than he actually profits on his work.

Purchase Order Book.

As a means of mutual protection to the plumber and the supply house, no goods should be ordered of the supply house verbally or written on a plain piece of memorandum or wrapping paper, or on a sheet of your regular stationery, but should be made out on a regular order blank, as in Fig 2

These order blanks should be made up in duplicate form and padded, or bound in a book, numbered, and with loose sheets of carbon paper.

The original order should be sent to the supply house

Progressive Plumbg. & Htg. Co.
1501 Chestnut St., Philadelphia, Pa.

Deliver No Goods Without a Written Order.

No. 225 Philadelphia, ...
Put Above Order
No. on Your Bill .....

.....

Please send us

Progressive Plmbg. & Htg. Co.

Per .....

Fig. 2.

and the carbon copy filed away or retained in the order book until the goods arrive, when they should be checked up with the carbon copy to see that they correspond in every particular. Also at the time of making out the order a notation should be made on the carbon copy of the order, stating for whom or for what job the goods are ordered, so that when the bill comes in, you know what job to charge for the materials.

When ordering goods over the telephone, the supply house should be advised what order number they should enter on their bill and a notation of the goods ordered in this way should be made on the duplicate order blank bearing this order number, and the original copy may be destroyed or marked "confirming phone order," and mailed to the supply house whichever method being the most convenient or desirable

While there are many plumbing and heating contractors today who are not using regular printed order blanks, yet the advantages of using a duplicate order book are many. It gives you a duplicate record of your goods ordered. It prevents over and under deliveries. It prevents unauthorized persons from obtaining material in your name. It eliminates all chances for disagreements, and gives a clear record of all transactions. It is also more systematic. It gives you an opportunity of checking up bills received with the order given, and at the same time a notation can be made on the bills of the name or job for which the materials were purchased.

Many times all the material for a job is not ordered at one time. It will be ordered as needed on the job in order to avoid piling up a lot of material that will have to be paid for a long time before it is necessary to have it on the job. With the duplicate order book one has an exact copy of what has been ordered and this will prevent one from overlooking or ordering more material than is required on a job. Many times some material that is needed is suddenly found to be wanted because it was not ordered with the rest. And the delay from lack of this material will cost more than the whole labor of keeping a systematic record of the order. If a duplicate order book had been kept and used as it should be, the fact that this material was not ordered would have been known in time to save delay. If a duplicate copy of the order is not kept on file how will it be known to any degree of accuracy just what has been ordered for the work?

(To be continued.)

Questions and Answers

TO SOLDER ALUMINUM.

Editor "Domestic Engineering":—Kindly inform me how to make a solder that can be used on aluminum.

Elmira, N. Y. J. K. G.

It is a very difficult matter to solder aluminum satisfactorily. This metal is a strong conductor of heat, and the rapid withdrawal of heat from the joint is one of the hindrances that will arise.

A worse feature, however, is the fact that galvanic action takes place between the aluminum and the metal composing the solder. It is easy to make a good looking job, one that appears to be perfect, but it will be found that after a time galvanic action has destroyed the joint.

The following is said to give good results as a solder: 30 per cent or less of zinc, 5 per cent or less of bismuth, and 65 per cent or more of tin.

Another formula is, viz.: 1.55 parts of tin, 23 parts of zinc, 5 parts of silver, and 2 parts of aluminum.

A third formula is, viz: 89.5 parts of zinc, 4.5 parts of copper, and 6 parts of tin.

AUXILIARY HOT WATER APPARATUS THAT DOES NOT WORK RIGHT.

Editor "Domestic Engineering":—The accompanying sketch shows the layout of an auxiliary hot water heating system, which does not work right. Will you have the

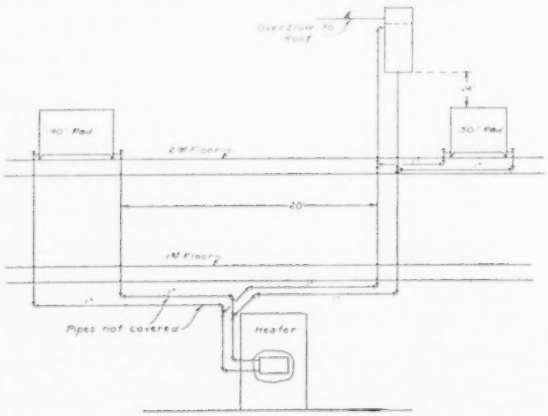


Fig. 1.

kindness to tell me what is wrong, and give me an idea of how to make it right with the minimum labor and expense?

Mt. Sterling, Ill. S. A. W.

Correspondent desires to be informed why the auxiliary hot water apparatus mentioned does not work. As shown by sketch, Fig. 1, submitted by him, there is 140 sq. ft. of radiation connected to the system and in our opinion the coil or water front used as an auxiliary heater is insufficient to supply this amount of radiation.

When an auxiliary heater or coil is placed low in the fire pot so that the hot fire comes in contact with it, each square foot of surface receiving the direct action of the fire will supply approximately 50 sq. ft. of radiation. If, however, the coil or water front is suspended above the fire it will supply only from 25 to 30 sq. ft. of radiation according to conditions, or the height which it is placed above the fire.

The piping system shown in the sketch, submitted by correspondent, is not correctly installed and in our opinion the piping is too small for the work. The main flow

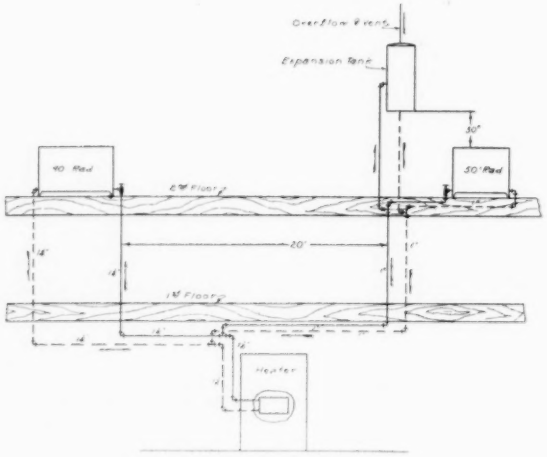


Fig. 2.

and return pipe from the auxiliary heater should be 1½ in. in size. This should be divided into a 1¼ in. supplying the 90-ft. radiator, and a 1-in. supplying the 50-ft. radiator, this piping and the connections being made as shown by our sketch, Fig. 2.

Correspondent has shown a double connection to the expansion tank, and from this fact we suppose it is his intention to circulate the water in the tank. If so this connection is incorrectly made as it shows the return connected to the side of the tank about half way its length and the flow connection into the bottom of the tank. These connections should be reversed, the flow connection should enter the side of the tank and the return connection should be made from the bottom in the manner shown on our sketch. The bottom of the tank should be at least 30 inches above the top of the radiator.

There seems to be no reason why these two radiators could not be supplied from an auxiliary heater provided the heater is of sufficient size and the piping correctly installed, and from the sketch submitted we believe that correspondent will be able to correct the trouble.

A PROBLEM IN HOT WATER SUPPLY.

Editor "Domestic Engineering":—Herewith you will find a rough sketch of a hot water supply system which does not give satisfaction. Will you kindly tell me, how it can be made to work right?

Salt Lake City, Utah. E. B. J.

In Fig. 1 we show correspondent's plan view of the problem that he presents. In such a view as he has given, it is difficult to tell exactly what all the connections are,

but as near as we can make out, his connections are about what we have shown in Fig. 2.

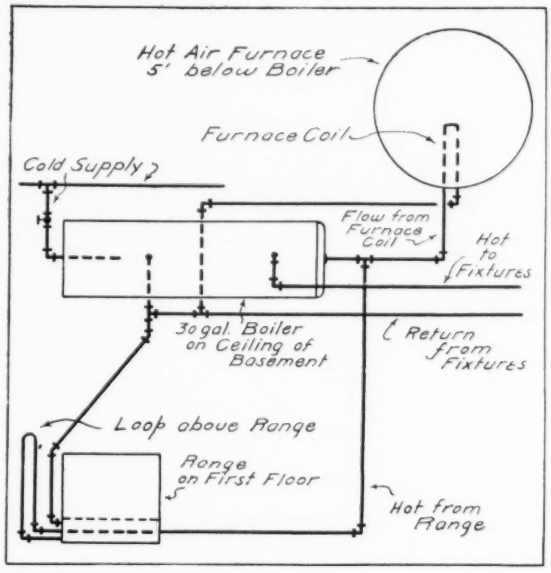


Fig. 1.

We have but little fault to find with the connections, except the connection from the range down to the boiler. We believe this connection as shown in Fig. 3, will give

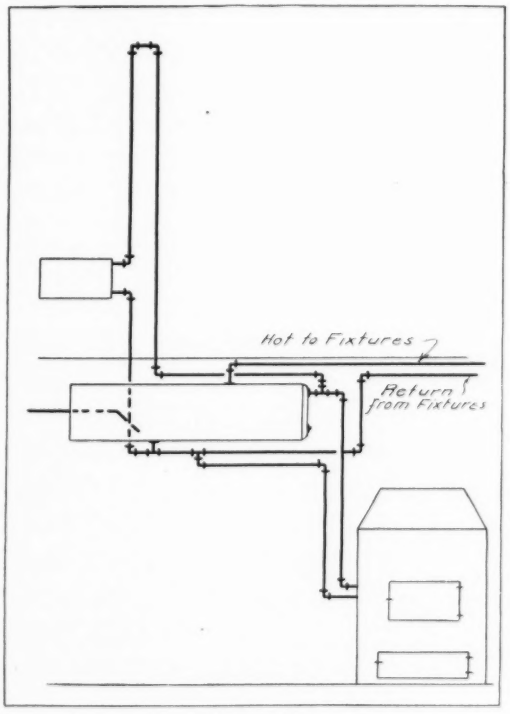


Fig. 2.

better results. In the summer time, when the furnace is not in use, the range will be the only source of hot water, and working at its best, may very likely prove inadequate. This being true, we believe the fixtures will get hotter water, and get it more quickly and directly with the direct connection of Fig. 3 than if the hot water from the range is first taken into the boiler as in Fig. 2. Furthermore, when the furnace is in operation, it seems to us that the rush of hot water from the furnace will prevent free passage to the boiler of hot water from the range above. One difficulty experienced in work of this kind is the stoppage of circulation by the collection of air at the top of the loop. Therefore, if possible to do so, a connection to some fixture above, should be run from the top of the loop, to relieve this air. If unable to do this, an air valve should be placed at the high point, to be used whenever air causes trouble.

We would advise running the loop as high up as possible, to get the best results.

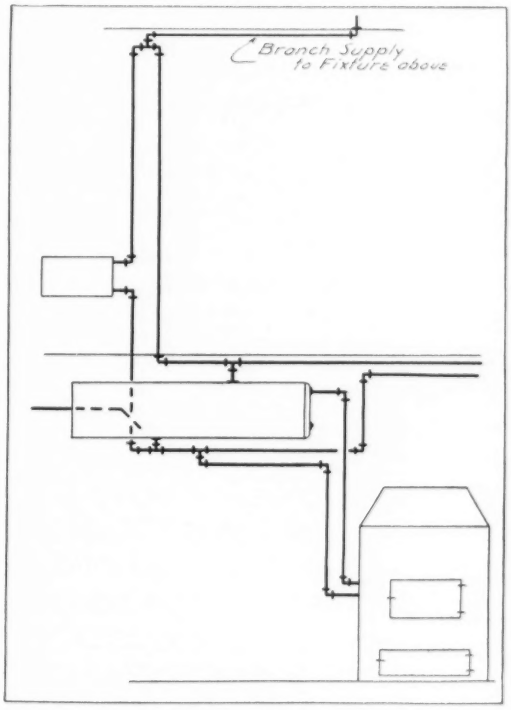


Fig. 3.

We do not wish to encourage correspondent to believe that the range will do fine work. The method he proposes to use is the best that can be followed under the circumstances, but with the range located above the boiler it will be found that results cannot possibly be obtained that will be as satisfactory as when the range is in its proper location.

RADIATOR HEATED BY RANGE BOILER.

Editor "Domestic Engineering":—I have a range boiler heated by a range, and I wish to heat a radiator on the same floor as the boiler, by using a coil in the furnace. Will you kindly show me how this can be done.

Providence, R. I. Subscriber.

In our two illustrations, we show two different methods for doing the work mentioned by "Subscriber." In the case of Fig. 1, the hot water is delivered to the boiler first before being delivered to the radiator, while in Fig. furnace coil.

Under many circumstances we would consider the 2 hot water is carried direct to the radiator from the

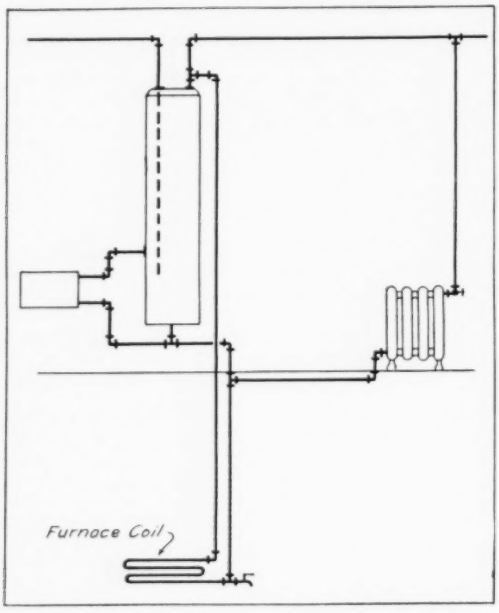


Fig. 1.

method of Fig. 1 preferable, but in the present instance we are inclined to favor Fig. 2.

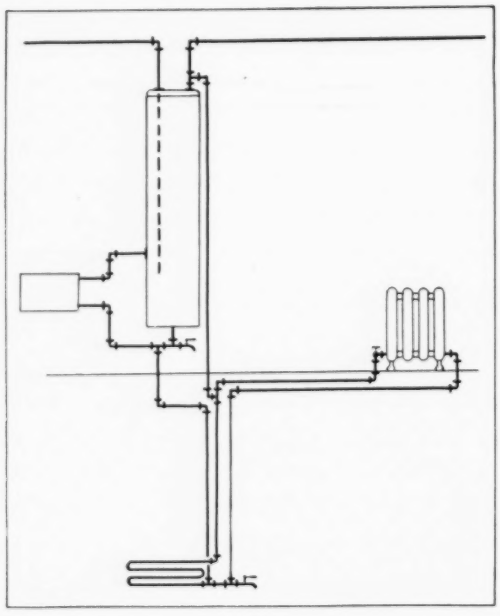


Fig. 2.

Probably the radiator will be needed only when the furnace is needed, and as the sole purpose of the coil is apparently to heat the radiator, we believe it will be best to connect directly to it. A connection is made to the boiler from the flow pipe from the coil, in such a way that most of the hot water from the coil will pass to the radiator. We give the two methods so that "Subscriber" may make his own selection.

SIZES OF TICKING AND MOLESKIN FOR WIPING CLOTHS.

Editor "Domestic Engineering":—I take the liberty of asking you to publish a table showing the sizes that ticking must be cut for the different sizes of 16-ply wiping cloths. I would also appreciate a similar table for moleskin wiping cloths.

Detroit, Mich. Helper.

As requested by "Helper," we show below, tables of sizes of the two kinds of wiping cloths.

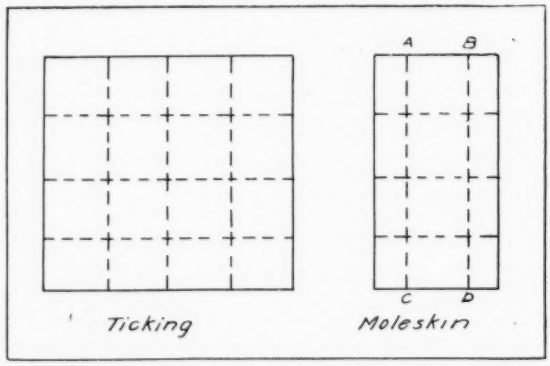
Sizes of Ticking.

Size of Wiping Cloth.	Cutting Dimensions.
4 in. x 4 in.	16 in. x 16 in.
3½ in. x 3½ in.	14 in. x 14 in.
3¼ in. x 3¼ in.	13 in. x 13 in.
3 in. x 3½ in.	12 in. x 14 in.
3 in. x 3 in.	12 in. x 12 in.
2¾ in. x 3 in.	11 in. x 12 in.
2½ in. x 3 in.	10 in. x 10 in.
2½ in. x 3 in.	9 in. x 12 in.
2½ in. x 2½ in.	8 in. x 12 in.
2 in. x 3 in.	6 in. x 12 in.
1½ in. x 3 in.	10 in. x 12 in.

Sizes of Moleskin.

Size of Wiping Cloth.	Cutting Dimensions.
4 in. x 4 in.	16 in. x 8 in.
3½ in. x 3½ in.	14 in. x 7 in.
3¼ in. x 3¼ in.	13 in. x 6½ in.
3 in. x 3½ in.	12 in. x 7 in.
3 in. x 3 in.	12 in. x 6 in.
2¾ in. x 3 in.	11 in. x 6 in.
2½ in. x 3 in.	10 in. x 6 in.
2½ in. x 2½ in.	10 in. x 5 in.
2¼ in. x 3 in.	9 in. x 6 in.
2 in. x 3 in.	8 in. x 6 in.
1½ in. x 3 in.	6 in. x 6 in.

From a comparison of these two tables, it will be seen that the area of cloth used in the ordinary moleskin cloth is only half that for the 16-ply ticking cloth. The reason



Comparative Sizes of Ticking and Moleskin Wiping Cloths.

for this is that if 16-ply, the moleskin cloth would be too thick and clumsy.

In our illustration is shown the comparative sizes for cloths of the two kinds, of the same dimensions, the dotted lines in each case showing where the folding comes.

In the case of the moleskin, by folding first on the long lines, A, C and B D, the cloth can be made up without a rough edge. If desired to stiffen the moleskin cloth, a piece of stiff paper can be folded in with the cloth, of the dimensions of the rectangle, A, B, C, D.

Glens Falls, N. Y.—H. Thomas & Son Co., is closing out its plumbing business at 42 West Street in this city.

New Britain, Conn.—The plumbing and hardware business of the T. H. Brady Estate has been closed out in accordance with the provisions of the will of the late T. H. Brady, whose death occurred about a year ago.

Waste Pipes for Chemical Laboratories

Second Installment of Report of Research Committee of American Society of Inspectors of Plumbing and Sanitary Engineers

THE interest in this subject has been quite extensive during the past year. Immediately after our meeting in St. Louis, this was the first subject brought to the consideration of your chairman as being worthy of the attention of our society and its Committee on Research and some of the results are given herewith.

Reports from several of the large cities in the United States have told of cases here and there in office buildings where iron and lead pipe have succumbed to the attack of the wastes from chemical and other laboratories, causing considerable cost for replacement and menacing the health of the inhabitants of the structures. For instance, in the city of Pasadena, an investigation was made as to the safety and sanitation of the school buildings within the city limits. A committee of nine was appointed, our esteemed brother Shaver being one of that committee. The first problem encountered was that of a chemical laboratory installation. Specifications called at that time for all waste pipes from chemical laboratory sinks to be of lead-lined iron pipe. In the old high school the waste pipes from the chemical laboratory plumbing fixtures were of lead and in a little over four years had to be replaced, as they were eaten through in many places. Investigation of different materials led to the conclusion that with the exception of the clay product all pipes were subject to corrosion under the attack of the different acids. In this particular case, Plumbing Inspector Shaver recommended the use of an extra heavy cast iron pipe to be exposed in such a manner that any part could be replaced without damage to the building and all waste and ventilating pipes were to be connected to an automatic flushing tank placed on the roof. Owing to a conflict between the Board of Education and the City Hall this recommendation, though adopted, was not carried out and the construction was continued by means of which the chemical laboratory waste pipe was built in the walls and cemented under the basement floors.

It is not estimated that the life of the pipe would be more than eight to twelve years under this condition of use, and a leakage occurring in the floors, or at the base of a pier, would attack the reinforcing iron and damage the building to such an extent as to make it unsafe.

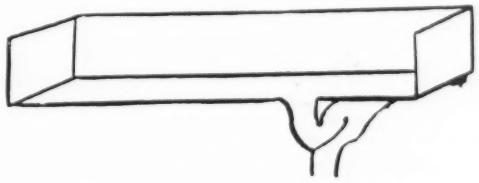
The question of using a diluting tank with a constant stream of fresh water flowing through it for the dilution of the wastes entering the tank would entail a prohibitive water supply cost, especially in places like Pasadena where water is obtainable at $1.40 per thousand cubic feet. It is maintained that lead is not a good material for waste pipes from chemical laboratory fixtures and that lead-lined pipe is even worse. In the cutting and fitting of lead-lined iron pipe, the lining becomes torn and the acid wastes working between the two materials causes the lead to hang in strips and sherds and finally stop up the whole system. A case of this kind is on record.

It has been suggested to your committee that regardless of the materials used the pipes should be run in the open so that defects could be remedied without damage to the building. It has also been suggested that these waste pipes should be treated the same as refrigerator wastes and that they should discharge into a properly ventilated plumbing fixture or catch basin, as it is impossible to vent each sink separately when they are located in batteries of eighteen or twenty in the center of the room.

In the chemical laboratory at the State University of Lawrence, Kans., the waste pipes are mostly all wrought iron, suspended below the ceilings and exposed their entire length. We understand that a part of this pipe has to be replaced each year and that the fittings always give way first.

Laboratory Plumbing Fixtures.

The Chairman of your Committee has written a number of letters on this subject to different concerns and persons in the United States and Canada, and has also made personal inquiries on trips to different cities concerning this matter of laboratory waste. In quite a number of instances we find that vitrified salt glazed pipe have been used both for vertical and horizontal installations. In the Decatur High School, Decatur, Ill., the chemical waste drains into 3-inch risers terminating in a 6-inch drain leading to the sewer, all these being of vitrified pipe. The risers were built into the wall and the joints were made of cement.



Slide 15-A—Suggested Dilution Tank.

There seems to be a well established recognition of the dangers coming from such attacks on lead and iron pipe lines by these chemical wastes. There is a varying expression of opinion on the amount of damage done and the speed with which destruction of materials is accomplished. We quote one or two paragraphs from letters received.

James Smith, Winnipeg, Manitoba, says: We have had quite a lot of experience in the university and school laboratories as well as in private establishments and I find that no hard and fast rules can be laid down to cover all circumstances. Salt glazed tile pipe is in my opinion the best material for the underground work, but this is not always possible except where the laboratory building can be sewered direct from the outside. This is the system adopted at our university. A tile drain was run into the building and trapped, and from there tile pipe branches run underground to the stacks. The stacks are construced of cast iron piping specially coated with tar. With the lead traps under the fixtures care had to be taken that no solder was used.

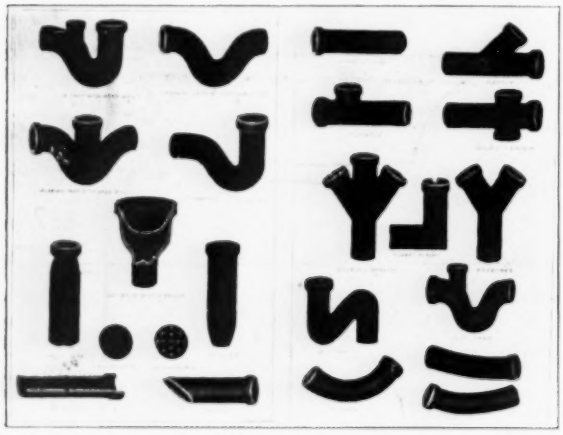
In buildings occupied otherwise than for laboratory purposes it is impossible to get a tile pipe sewer into the building, so that a connection is taken off the cast iron main drain and trapped, a small concrete basin is built around the trap and the laboratory wastes discharged openly over this basin.

Wrought iron piping deteriorates very quickly under

the action of acid, and lead pipe will also eat out if solder is used in jointing, but lead pipe of itself is an excellent material for laboratory work.

Jno. Fowler, of Jacksonville, Fla., says: "In reference to acid wastes, I have been able to compel the installation of chemically pure lead waste pipe run on the surface and run separate from the sewer from the outside of building to the fixtures. This in my opinion is the best material to use. However, no matter what is used, whether lead, glass, terra cotta or cast iron, it seems to me that it is a question of educating the users to the practice of properly diluting the acid wastes before emptying the same into the sewers. In proof of this will cite a case that came under my observation. Four years ago a lead waste was put in for a large concern using quantities of nitric and sulphuric acid. In two years' time the waste pipe was eaten through in places. I recommended a new lead waste pipe but connected indirect; that is, empty all acid waste into a sink containing running water wasting through a standing overflow. This was done and now after two years' service the lead pipe is in perfect condition."

The National Tube Co., of Pittsburgh, Pa., states: "The only iron or steel pipe which will withstand acid conditions for a great length of time is that recently made by us, using copper-steel alloy. This will last about a hundred times longer than wrought iron in 20 per cent sulphuric acid, the life of the pipe varying with the strength of the acid."



Slide 16—Vitrified Pipe Fittings.

This matter is serious enough to warrant careful attention by our society. It is not to be supposed for a moment that the owner of a twenty-story building should be permitted to rent his top story to a firm of analysis from whose laboratory wastes detrimental to the iron and lead piping installation throughout the building shall continually flow. It must be remembered that operators of such laboratories seek top floors because of light and air and ready escape of fumes arising from their experimental work. Some definite provision should be made in city ordinances which shall compel owners of buildings to provide for separate removal of these dangerous wastes, either by special dilution tanks or by subsidiary vitrified pipe drains discharging direct to the sewer. Each case will have to be decided on its own merit according to existing conditions. It may be contended that many of these wastes are not injurious, but there is no possible means of checking the operators in their use of different acids.

Slide 15a shows a suggestion for a dilution tank in connection with the disposal of wastes from chemical laboratories. It is offered by one of the members of the Committee on Research as a possible solution in certain cases, and it is anticipated that the manufacturers of pottery ware will be able to meet the possible demand for these fixtures or will be able to suggest to your committee the type of fixture which could be made along these lines which would enable the plumbing inspector to offer a satisfactory solution of the problem.

Slide 16 shows the different fittings that may be obtained in vitrified products suitable for utilization in vertical and horizontal installations of this kind. For jointing the pipe there are a number of materials offered, among which have been cited as the most satisfactory, a material called "Jointite." This is an asphaltic compound which can be poured into the joints much after the style of lead pouring, and is claimed to be singularly free from deterioration, able to withstand high-pressure tests and an ideal resistant of acid attack.

NEW YORK MASTER PLUMBERS LOSE MUCH MATERIAL BY THEFT.

Commissioner Waldo of New York City is investigating the complaint of the Master Plumbers' Association, that its members have been robbed of $100,000 worth of plumbers' material within a year because of inadequate police protection.

A delegation of the plumbers visited the Commissioner last week and gave specific details of their grievances. They said entire buildings under construction, especially in the midtown loft district, had been stripped of costly brass and iron materials. The thieves sold their booty to low-grade dealers and these in turn had the effrontery to offer them back for sale to the men from whom they had been stolen.

The delegation told the Commissioner they had employed private detectives when they got no help from precinct detectives, but had not been able to stop the wholesale thieving. Many specific instances were given. It was said that, within the last five weeks from $800 to $900 worth of fittings had been stolen from the building being erected next to the Prince George Hotel in East Twenty-eighth Street. From the twelve-story building at 31 East Twenty-eighth Street $300 worth had been looted. The building going up on the site of the old Bull Sanitarium, on Thirty-third Street, had lost $500.

Commissioner Waldo, the plumbers said, admitted that the robberies were a shame and promised to look into the matter at once.

Milton Schnaier of the plumbing firm of Milton Schnaier & Co., of 347 Columbus Avenue, one of the members of the association, explained how the looting is done. When the contracts to pipe buildings are made the plumbers store material in shanties next the site. These are supposed to be guarded by watchmen.

When the shanties are full enough to make a haul profitable the gang of thieves, according to Mr. Schnaier, send a couple of men to scrape an acquaintance with the watchman. When they have made the watchman think they are good pals they notify the actual thieves.

The watchman is easily persuaded to go to a saloon, where his "pals" ply him with drink and keep him occupied while the thieves break into the shanties and even tear out the piping and other metal fixings from the building, and cart the booty away. Mr. Schnailer says the thieves have apparently found no trouble in getting the

stuff away in trucks or wagons, and getting it sold.

The thieves work between 5 o'clock p. m., when the men stop work, and early morning. They have a longer time for their operations between Saturday and Monday morning.

In order to make the robberies profitable, the thieves are forced to wholesale methods. Very often, the plumbers believe, they have bought back the material which has been stolen from them. Mr. Schnaier estimates that he has lost close to $20,000 in the last year, and there have been other large individual losses.

Complaints of these robberies have been especially numerous at the West Thirteenth Street station.

MASTER PLUMBERS, OF SYRACUSE, N. Y., ELECT OFFICERS.

The Master Plumbers' Association, of Syracuse, N. Y., held its annual meeting on Tuesday evening, December 9th, and elected the following officers for the ensuing year: President, Michael F. Burke; vice-president, Charles Dick; secretary, Charles A. H. Kienzle; treasurer, Claude L. Mardin; sergeant-at-arms, John Lavelle.

MASTER PLUMBERS OF MARLBORO, MASS., ORGANIZE.

Master plumbers of Marlboro, Mass., have organized the Marlboro Master Plumbers' Association, with George R. Hall as president. One of the leaders in the movement was William H. Hill, a former president of the Massachusetts State Association and one of the leading master plumbers of Marlboro. In a statement regarding the object of the organization Mr. Hill said: "The association has been formed for the study of sanitary laws and the improvement of plumbing in Marlboro. The local laws need revision. They have not been changed since 1890 and conditions have been changed considerably since that time." All of the master plumbers in the city have joined the new association.

BRONX MASTER PLUMBERS' ANNUAL RECEPTION.

The Bronx Branch of the New York City Master Plumbers' Association will hold its annual entertainment and reception on Friday evening, January 16, 1914, in the McKinley Square Casino, 169th Street, near Boston Road, New York City. The arrangement committee consists of: John J. Foley, chairman; Thomas J. F. Moffett, secretary; Stephen H. Welch, treasurer; Joseph Rowan and Frank Harbeck. Tickets for the event can be obtained from John J. Foley, 511 West 181st Street, or Stephen H. Welch, 1874 Washington Avenue, Bronx.

WANT MORE STATE PLUMBING INSPECTORS IN OHIO.

John A. Brooks, president of the Master Plumbers' Association, of Toledo, O., on behalf of the master plumbers and journeymen plumbers of Ohio, last week asked Governor Cox to aid in the passage at the special session of the legislature this winter of a bill providing enough deputies for the state plumbing inspector to make it possible for adequate inspection of all plumbing in towns, cities and state institutions, and that the department be made self sustaining by a graduated system of fees. A similar bill supported by the plumbers failed in the house a year ago. The plumbers' organizations say that plumbing is not properly inspected now as the state board of health has only one inspector, who has no assistants, and it is a physical impossibility for him to look after all the work in the state.

January 13, 14 and 15, 1914.—The annual convention of the Iowa Master Plumbers' Association, at Keokuk, Iowa. The officers of the association are: President, A. B. McCarten, Dubuque; vice-president, Wm. O. Ewinger, Burlington; treasurer, W. D. Hogan, Sioux City; secretary, R. A. Ellis, Waterloo; organizing secretary, R. E. Knauer, Des Moines, Iowa.

January 12 and 13, 1914.—The annual convention of the Missouri State Association of Master Plumbers, at St. Louis, Mo. The officers of the association are: President, George A. Wood, Springfield, Mo.; secretary, C. L. Smith, 2408 East Twelfth Street, Kansas City, Mo.

January 20 and 21, 1914.—The twentieth annual convention of the Wisconsin Master Plumbers' Association, at Madison, Wis. The officers of the association are: President, S. V. Hanley, Milwaukee; vice-president, George F. Reeke, Green Bay; secretary, Louis Sonntag, Sheboygan; treasurer, F. E. Green, Janesville; national state vice-president, Jacob Schub, Milwaukee.

January 20, 21 and 22, 1914.—Annual meeting of the American Society of Heating and Ventilating Engineers, to be held in the Engineering Societies Building, 29 West Thirty-Ninth Street, New York City. The officers of the society are: President, John F. Hale, Camden, N. J.; vice-presidents, Albert B. Franklin, Boston, and Edmund F. Capron, Chicago; treasurer, James A. Donnelly, New York City; secretary, Edwin A. Scott, New York City.

January 27, 28 and 29, 1914.—The twenty-second annual convention of the Illinois Master Plumbers' State Association, at Rock Island, Ill. The officers of the association are: President, W. J. Hilliard, Elmhurst; first vice-president, C. D. Brownell, Champaign; second vice-president, John L. Robertson, Mason City; treasurer, O. W. Dawson, Decatur; secretary, W. C. Haviland, Coulter Block, Aurora, Ill.

February 17, 18 and 19, 1914.—The twenty-third annual convention of the Ohio Master Plumbers' State Association, at Cincinnati, with headquarters at the New Gibson House. The officers of the association are: President, F. W. Sponseller, Canton; vice-president, James A. Wood, Toledo; secretary-treasurer, Eb. Ellen, Cleveland.

March 9, 10 and 11, 1914.—Annual convention of the Indiana State Association of Master Plumbers, at Lafayette, Ind. The officers of the association are: President, Wm. J. Woolley, Evansville; vice-president, Joseph G. Hayes, Indianapolis; secretary-treasurer, A. E. Werkhoff, Lafayette, Ind.

April 21 and 22, 1914.—Annual convention of the Pennsylvania State Association of Master Plumbers, at York, Pa. The officers of the association are: President, D. F. Durkin, Philadelphia; vice-presidents, George W. Palmer, Lemoyne; Robert Purse, Johnstown; E. D. Swoyer, Allentown; treasurer, John H. Birchall, Allentown; secretary Harry L. Righter, 5424 Germantown Avenue, Philadelphia.

New York, N. Y.—Jarcho & Ebert, of 1485 Southern Boulevard, are busy with several large heating contracts, which they recently secured.

Ironton, Minn.—William Blackwood has secured the contract for the installation of plumbing and heating systems in the Peter Spina Hotel.

Onawa, Iowa.—Tollinger & Jepson have secured the contracts for the plumbing and heating in the residences of Walter Rowles and E. C. Armstrong.

Eveleth, Minn.—The Northern Plumbing & Heating Co. has secured the contract for the plumbing and heating in the new hotel being erected in this city.

Frederick, Md.—E. S. Mobley & Bro., of this city, have secured the contract for the installation of heating plants in the Horsey Distillery Co's. buildings.

New York, N. Y.—Fred Weber, of 830 Courtland Avenue, has secured the contracts for overhauling several large plumbing systems in his neighborhood.

Little Falls, N. Y.—Tallman & Burns, of this city, have secured the contract for the installation of a new heating system in the Mack Building on North Main Street.

Pittsfield, Mass.—Noble, Milne & Co., of this city, have secured the contract for the installation of a steam heating plant in the Congregational Church at Dalton, Mass.

St. Joseph, Mich.—Adolph Reich, of this city, has secured the contract for the plumbing and heating in the state bank building being erected at Coloma, Mich.

New York, N. Y.—Otto Ozab, of 3217 Third Avenue, has secured the contract for the plumbing in two 30-family apartment buildings at Webster Avenue and 176th Street.

Columbus, O.—The Columbus Heating & Ventilating Co., of this city, has secured the contract of the installation of a heating system in the South Solon school building.

Lake City, Iowa.—F. O. Cottong, of this city, has just secured the contract for the installation of plumbing, heating and lighting systems in a new residence at Somers, Iowa.

Norfolk, Neb.—B. O. Daubert, of 118 South Fourth Street, is installing the plumbing and heating in the New Palace Cafe, and a vacuum heating system in the Bishop Block.

Minneapolis, Minn.—Hineline & Co., of this city have secured the contract for the installation of plumbing and heating systems in the new passenger station at Albert Lea, Minn.

Negaunee, Mich.—Swanson Bros., of this city, have secured the contract for the installation of a hot water heating system in the Swedish Lutheran Parsonage at Norway, Mich.

Bellevue, Iowa.—Brandt & Weber, of this city, have secured the contract for installation of a steam heating plant in Felderman Bros.' building at Lamotte, Iowa. Consideration $800.

Bayonne, N. J.—John J. Cooney has been awarded the contract for the installation of heating and ventilating systems in the new public school building. The contract amounts to $29,580.

Grand Rapids, Mich.—The Sproul-McGurrin Co. has secured the contract for the installation of a new heating plant in the Schiltz Building, at the corner of Division Avenue and Cherry Street.

Monroe, N. Y.—The Smith & Strebel Co., of this city, has secured the contract for the installation of an up-to-date plumbing system in the new building being erected at the Seven Springs Mountain House.

Tacoma, Wash.—Ben Olson Co., of this city, has secured the contract for the plumbing in the Dining Hall on the Kitchen Building at the Northern Hospital for the Insane, at Sedro Wooley. Consideration $2,785.

Newark, N. J.—Elias Berla, of 217 Washington Street, has secured the contract for heating and Miller Bros. have secured the contract for plumbing in Bronstein & Fernsod Co.'s new building on Eighteenth Avenue.

New York N. Y.—T. Goldreyer, 780 Forest Avenue, has secured the contracts for the installation of heating systems in three new houses being built in his neighborhood. These contracts amount to several thousand dollars.

Omaha, Neb.—Schollman Bros., of 4114 North Twenty-fourth Street, have been awarded the contract for the installation of plumbing and steam-heating systems in the new school building, now being constructed at Dwight, Neb. The contract amounts to $3,000.

New York, N. Y.—W. H. Downey, of Twenty-second Street and Third Avenue, has secured the contract for the installation of a hot water heating system in a new building being erected in the upper section of Manhattan. He also has several contracts for overhauling plumbing systems.

ASSOCIATION OF COMMERCE HEARS REPORT ON PLUMBING, HEATING AND VENTILATING.

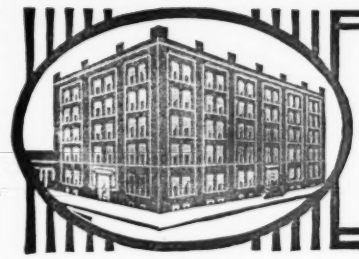
On last Wednesday, at the noon luncheon of the Ways and Means Committee, of the Association of Commerce of Chicago, which was held at the La Salle Hotel, Harry Verbeek, as chairman of Subdivision No. 44 which covers the plumbing, heating and ventilating interests of Chicago, read a report covering the business of Chicago firms in this classification.

The report is a most interesting one and goes into the subject quite fully. We will take pleasure in reprinting it in full in the New Year's number next week.

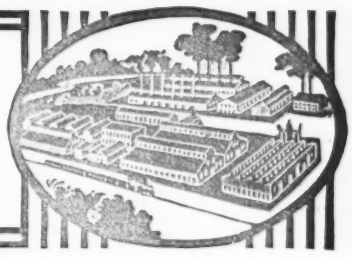
A number of the men in the trade were present at the meeting. The subdivision was represented at a special table by C. C. Stringer of the Republic Manufacturing Co., Thomas J. Claffy, assistant chief of the bureau of health, and president of the American Society of Inspectors of Plumbing and Sanitary Engineers; Charles C. Dreier, president of the Chicago Master Plumbers' Association, and representatives of the trade press.

RECEIVER FOR LEWIS & KITCHEN.

Lewis & Kitchen, heating and ventilating contractors at 900 South Michigan Avenue, Chicago, were placed in the hands of a receiver on Tuesday afternoon, December 16th. Among the petitioning creditors and the amounts alleged due them are: American Radiator Co., $25,000, and B. F. Sturtevant Co., $20,000. The liabilities of the firm are said to amount to $300,000, but all debts will be paid in full, it is stated, if contracts on hand are completed and paid for. The Central Trust Co., of Chicago, was appointed receiver.



Among the Wholesalers and Manufacturers



WILL BUILD PLANT IN AUBURNDALE, O.

The National Supply Co., of Toledo, O., is making arrangements to build a large plant in Auburndale, a suburb of that city, at a cost of $150,000.

HAVE MOVED SOME OF THEIR OFFICES IN OHIO.

The Cleveland branch of the H. W. Johns-Manville Co., of New York City, has recently been obliged to provide larger quarters for two of its subsidiary offices. The Columbus office and contract department are now located on the ground floor of the new seven-story fire-proof Peters Power Building, 45 West Long Street, with large warehouse facilities half a block distant. The Toledo office and warehouse have been moved to 213 Water Street.

GAVE TWO SUCCESSFUL MINSTREL SHOWS.

The Greenfield Tap and Die Minstrels, composed of employes of Wells Bros. Co., Wiley & Russell Mfg. Co. and A. J. Smart Mfg. Co., of Greenfield, Mass., gave two excellent entertainments at the Lawler Theatre in that city, on Tuesday and Wednesday evenings, December 2nd and 3rd, under the auspices of the "Little Giant" and the "Lightning" Benefit Associations. The committees in charge of the affair consisted of the following gentlemen: M. E. Dunnigan, L. H. Houghton, George Hempstead, G. E. Stevens, Thomas Cain and L. W. Graham. This was the second annual affair of the kind, and it was a great success in every respect.

CLASS IN HEATING AND VENTILATION OPENED.

Owing to the rapid advancement of the science of heating and ventilation and a corresponding increase in the demand for men, who are well-posted in this line of work, a class in the theory and practice of heating and ventilation has just been opened at Room 511, World Building, New York City, to provide a course of instruction for persons with limited time and money at their disposal. This course consists of twenty-two lectures, and the opening meeting was held Monday evening, December 1, when twenty-four men were enrolled, including salesmen, engineers, draughtsmen and steamfitters. This first meeting was opened by J. A. Donnelly, who explained the opportunity for those interested in design and installation of heating and ventilating equipment to obtain a good idea of this science. He was followed by Frank K. Chew, who spoke of the activities of Geo. G. Schmidt, the secretary of the class, and C. A. Fuller, the lecturer. The advantages of the course were presented in a most convincing manner. The first class will meet every Monday evening until twenty-two lectures have been given, and enrollments can still be obtained upon application to Secretary Geo. G. Schmidt, 132 Nassau Street, New York City.

TO MAKE DISHONEST ADVERTISING IN CHICAGO A MISDEMEANOR.

Through the efforts of the Advertising Association of Chicago, an ordinance is now before the city council of Chicago, which, if passed, will prove an uplift for good and honest advertising and make dishonest advertising a misdemeanor, punishable by heavy fines. The ordinance in full is worded as follows:

"Be it ordained by the city council of the city of Chicago: Section 1. Any person, firm, corporation, or association who, with intent to sell or in anywise dispose of merchandise, securities, service, or anything offered directly or indirectly by such person, firm, corporation or association to the public for sale or distribution, or with intent to increase the consumption thereof, or induce the public in any manner to enter into any obligation relating thereto, or to acquire title thereto, or any interest therein, makes, publishes, disseminates, circulates, or places before the public, or causes directly or indirectly to be made, published, disseminated, circulated, or placed before the public in this city in any newspaper or other publication sold or offered for sale upon any public street, sidewalk, or other public place, or on any sign upon any street, sidewalk, or public grounds, or in any handbill or advertisement posted upon any street, sidewalk, or public ground, or on any placard, advertisement, or handbill exhibited or carried in any street or public ground or upon any sidewalk, or on any banner or sign flying across the street or from any house an advertisement of any sort regarding merchandise, securities, service, or anything so offered to the public which advertisement contains assertion, representation, or statement which is untrue, deceptive, or misleading shall be fined not less than twenty-five ($25) dollars nor more than two hundred ($200) dollars for each offense. Section 2. This ordinance shall be in force and effect from and after its passage and due publication."

FREIGHT RATES ON EXHIBITS TO AND FROM THE PANAMA-CALIFORNIA EXPOSITION AT SAN DIEGO, CAL.

All exhibits destined to the Panama-California Exposition, to be held in San Diego, from January 1 to December 31, 1914, forwarded from points in the territories covered by the Pacific Freight Tariff Bureau, the Transcontinental Freight Bureau, the New England Freight Association, the Trunk Line Association (including points in Canada located east of Toronto, Ontario), and the Central Freight Association (including points in Canada west of Toronto), on which full tariff rates are paid going to the exposition, will be returned carriage free, except race horses and vehicles (including automobiles for racing purposes exhibited at this exposition). Goods to be returned by the routes that originally carried and offered for return transportation, 90 days after the close of the ex-

position. Special rates will be granted on articles intended for exhibit, the return of which, owing to their nature, may not be desirable. In addition to freight charges on all exhibits, a reasonable charge has been announced to cover the cost of handling freight from the freight houses, team tracks and wharves of the railroad and steamship companies (located within the city of San Diego), to the buildings located within the exposition grounds. The Pacific Coast Steamship Co., the Pacific Navigation Co., and other coastwise steamers have issued special rates governing the movements of exhibits from points north of San Diego. The interested southeastern lines undoubtedly will concur with all the railroads which have announced special rates for exposition purposes, giving the Panama-California Exposition special rates from every point in the United States and Canada. Rates and terminal charges may be had on application to any freight agent in the United States and Canada.

CRANE-HAWLEY CO'S. NEW BUSINESS HOME.

To make way for the building of the new Hamilton County court-house in Cincinnati, O., the Crane-Hawley Co. was compelled to seek new quarters. The county commissioners took over the Crane-Hawley Co's. property consisting of a very substantial mill-constructed building, erected some twelve years ago, a pipe shed and

Crane-Hawley Co.'s New Building in Cincinnati.

a five-story brick building. During the month of August, 1912, the Crane Co. commenced the erection of a modern building consisting of five floors, a basement and sub-basement, approximating 100,000 square feet. As will be seen by the accompanying illustration the architectural firm of Elzner & Anderson, of Cincinnati, have produced a building of extreme simplicity, but practical in all its details. Its construction consists of steel beams and cast iron columns, all imbedded in concrete for fire protection. The floors are of reinforced concrete bearing on brick walls. The building is supplied with two freight elevators of a total capacity of 6,000 lbs., and also a passenger elevator running from the entrance lobby on the first floor to the main office and show-room located on the second floor. The office is very spacious, requiring 5,000 square feet and the show-room covers 3,750 square feet. The walls of the show-room are covered with wainscot of Rookwood tile, and a number of separate bath-rooms in the main show-room are finished in various tiles. A part of the show-room proper is used for the display of factory and other special appliances. The main office and show-room are illuminated by indirect lights of 400 and 500 watt capacity. The pipe sheds in the rear of the building contain 6,000 square feet and are practically arranged for loading and unloading freight cars. The cars run alongside the pipe-sheds and are unloaded by overhead electrically-driven trolley hoists. The pipe shop located in the basement has an area of 6,000 square feet and is equipped with the latest machinery. Nine pipe machines ranging from 1-8 inch to 18 inches, two drill presses, one cutting-off machine, two grinders, one lathe and one refacing machine. All are direct motor-driven of 220 volts direct current. With such up-to-date equipment and their large stock of plumbing and steam goods the Crane-Hawley Co. is now in position to give the trade prompt service.

C. R. James, manager of the Buckeye Tank & Seat Co., Canton, O., has just returned from a ten days' trip which took him as far east as New York and Boston.

Adolph Mueller, president of the H. Mueller Mfg. Co., Decatur, Ill., visited Pittsburgh last week and, accompanied by the company's local representative, made several calls on old acquaintances in the trade.

R. K. Milward, for several years in charge of the city sales department of the United States Radiator Corporation, at Omaha, Neb., has been transferred to St Louis, Mo., to become manager of this concern's branch in that city.

In our report of the December meeting of the Illinois Chapter of A. S. H. & V. E., published last week, we mentioned J. F. Tuttle as manager of the Chicago office of Warren Webster & Co., of Camden, N. J. We should have written Assistant Manager, as this is his position with the above-mentioned company.

BOOKLETS OF INTEREST TO THE HEATING TRADE.

For the information of those interested in some of the latest methods and improvements in the steam heating business, the Consolidated Engineering Co., of Chicago, Ill., are offering in their page to appear in the big annual issue of "Domestic Engineering" the following new booklets:

A neat 24-page booklet describing in compact form the Van Auken System of Vacuum Heating.

Booklet of 12 pages, explaining the Thermograde System of Heat Modulation. Applied both to vacuum and low pressure work.

Pocket size, 32-page catalog, illustrating and giving tables of Van Auken Steam Heating Specialties.

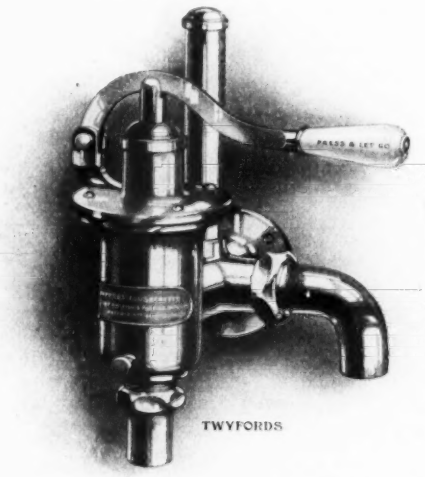
Report by a Professor of mechanical engineering in one of our largest universities, of a test of the Thermograde System of Heat Modulation, an 18-page booklet.

When the printer delivers the booklet "Installations," containing a large number of installations by this company, it will be distributed to those requesting it.

Anyone needing these booklets in his business, can secure them on request, mentioning "Domestic Engineering."

A NEW ENGLISH FLUSHING DEVICE.

Twyfords Limited, of Hanley, Staffordshire, England, one of the largest and oldest firms of sanitary potters and engineers in Great Britain, have secured world-wide patent rights for a new flushing device—known as the Flusherette. The most notable feature of this device is that it prevents a continuous or erratic flush, and delivers a pre-determined volume of water at each operation. Another noticeable feature is that the very simple internal construction makes it possible to have unrestricted water-ways in the fitting, so much so that it



A New English Flushing Device.

will efficiently flush with only 6-ft. head of water, any ordinary closet bowl. This does not mean that the Flusherette is not suitable for other than low pressures, as it works equally well under pressures varying from 3 lbs. to 100 lbs. per square inch and upwards. There are no delicate valves or other readily worn parts to get out of order, and even under high main pressures the handle is easily manipulated.

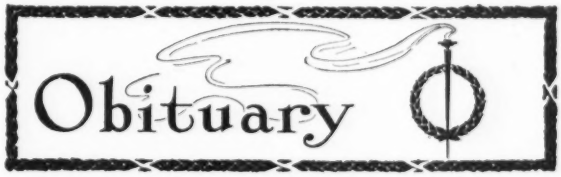
New York, N. Y.—Fred Brutsche has opened a plumbing establishment at 571 Eagle Avenue.

Auburn, Me.—Chase & Smith is the style of a new plumbing firm which has just started in business at 242 Court Street.

New York, N. Y.—John J. McGill has opened a plumbing and heating establishment at 950 Freeman Street. He would like to receive catalogs from jobbers and manufacturers of plumbing and heating goods.

Little Rock, Ark.—The Russellville Plumbing Co. has been incorporated with a capital of $10,000. The officers of the new company are: President, W. J. White; vice-president, James M. Ball; treasurer, J. W. White, secretary, Lewis Ragsdale.

Cincinnati, O.—The Bohmer-Fichter Co., of this city, has been incorporated with a capital of $10,000, to conduct a plumbing and gas-fitting business. The incorporators are: James H. Fichter, Joseph Bohmer, Walter Beinhart, and G. A. Ginter.



Emil Pahl.

Emil Pahl, vice-president of the Pahl & Harry Co., contracting plumbers and hardware dealers at Stockton, Cal., died at his home in that city on Wednesday, December 3rd, in his 61st year, from an attack of pneumonia. His wife, three sons and two daughters survive him.

Frank Hogan.

Frank Hogan, who conducted a plumbing business at 4620 Fifth Avenue, Brooklyn, N. Y., died at his home in that city on Sunday, December 7th, in his 39th year. He was a member of the Brooklyn Branch of the New York City Master Plumbers' Association. His wife, a brother and three sisters survive him.

Albert Davenport Sleeper.

Albert Davenport Sleeper, who for eighteen years had been connected with the plumbing firm of Sleeper Bros., of Rockland, Maine, died at his home on Limerick Street in that city on Thanksgiving Day. He was a son of Silas N. Sleeper, one of the original members of the firm of Sleeper Bros. He was born in Bangor, Me., 33 years ago, and his wife survives him.

W. J. Boyle.

W. J. Boyle, formerly with the Detroit Lead Pipe Works and more recently with the Murray W. Sales Co., of Detroit, Mich., died on November 28th from a complication of diseases. His wife passed away last spring, and it is believed that sorrow over her death caused his breakdown in health. Mr. Boyle covered the suburban cities for the Murray W. Sales Co. He was well known in the trade.

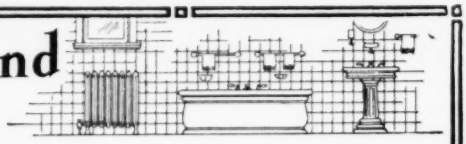
Wiltsie Fuller Wolfe.

Wiltsie Fuller Wolfe, president of the Fowler & Wolfe Manufacturing Co., of Philadelphia, Pa., died at his home in that city on Thursday, December 4th, according to announcement just issued by the company. Mr. Wolfe was a charter member of the American Society of Heating and Ventilating Engineers and he was president of the Society in 1898. He had many friends in the trade who will regret to receive the intelligence of his demise.

Horace S. Hubbard.

Horace S. Hubbard, one of the founders of the Miller-Hubbard Mfg. Co., manufacturers of plumbers' woodwork at Sturgis, Mich., died in a hospital at Rochester, Minn., on Saturday, December 6th, in his 57th year. Mr. Hubbard conducted a plumbing business at Elkhart, Ind., before he entered the manufacturing field. His burial took place in Pittsburgh, Pa., where he was born. A grandson, two brothers and two sisters survive him.

Among the Plumbing and Heating Contractors



Illinois

Chicago.

The plumbing contract for a six-flat building to be erected on Mozart Street near Twelfth Street, has been awarded to I. Miller, 1012 South Halsted Street.

F. McGuire, of 4158 Irving Park Boulevard, will install the plumbing on a cottage to be built at 5808-12 Grace Street.

The plumbing installation on a six-flat apartment house to be erected at 4001-6 Warwick Avenue, will be done by Kiesling Bros., 2320 West North Avenue.

L. A. Clausen, of 2334 Milwaukee Avenue, will install the plumbing system in a two-flat building to be constructed at 2327 North Springfield Avenue.

P. K. Clayton, of 1957 North Western Avenue, will install the plumbing system in a six-flat apartment house to be erected at Wellington and Forty-first Avenue.

M. Raskin, 2108 West Division Street, has recently secured the plumbing contract for a six-flat building to be erected at 1130 Mozart Street.

The Winnetka Plumbing & Heating Co. will install the plumbing and heating system in a residence to be built in Winnetka, for Forbes Cadenhead, of 30 North La Salle Street, Chicago. This company will also do the plumbing in residences, at 844 Ferndale Street and 975 Pine Street.

The plumbing system in two stores and a flat to be built at Forty-third Street and San Francisco Avenue, will be installed by F. Tichy, of 2721 Lawndale Avenue.

Chas. Krueger, of Norwood Park, Ill., will install the plumbing work in a residence to be built at 6729-31 Oliphant Avenue.

Five stores to be built at 3809-19 North Crawford Street, will be equipped with plumbing systems by Riordan Bros., 3523 Ogden Avenue; owner W. H. Barry, 30 North Cicero Avenue. This concern will also install pluming in a residence to be built at 3634-38 North Avers Avenue.

Joseph D. Martin, of 410 Des Plaines Street, will install the plumbing system in the Commercial Garage at Lake Street and Kedzie Avenue, for Edward Ropp, 3310 Park Avenue.

A twelve-flat apartment building to be erected at 4742-44 North Washtenaw Avenue, will be equipped with an up-to-date plumbing system by M. B. Mason, 3001 Ogden Avenue.

The plumbing in cafe, buffet and flat at 6701 Dorchester Avenue will be remodeled by Thos. E. Kuffy, 6407 South State Street.

Greenberg & Levinson, 1114 South Paulina Street, will install the plumbing in a two-flat building to be constructed at 1500-1506 Central Park Avenue.

Charles Mundt, of 2184 Milwaukee Avenue, will install a plumbing system in a residence to be built at 4949 St. Paul Avenue.

A twelve-flat building to be erected at 746-54 Laurel Avenue, will be equipped with plumbing by G. H. Lillig, of 337 North Laramie Avenue.

John Cepican, of 1913 West Fifty-first Street, will install the plumbing in a store and flat to be built at 3909 West Fifty-first Street.

Three stores and five flats to be built at 2944-46 Grand Avenue will be equipped with plumbing by M. Katz, 814 West Taylor Street.

The plumbing contract on a five-flat building, to be constructed at 4926-36 West Twenty-second Street, has recently been awarded to Reynolds Bros., of 835 West Twenty-second Street. The firm has also secured the contract for plumbing work on stores, flats and offices to be built at Twenty-second and Forty-eighth Avenues, Cicero.

A six-flat apartment building, to be erected at 7116-18 Harvard Avenue will be equipped with plumbing by Frank Cerke, 1939 West Thirty-fifth Street.

W. F. Bahn, of 3608 Southport Avenue, has recently secured the contract for installing the plumbing in a three-story building to be erected at 2035 Eastwood Avenue.

A nine-flat building to be erected at 1132 South Mozart Street, will be furnished with modern plumbing by H. H. Miller, of 1520 South Kedzie Avenue.

P. Russell, of 5413 Higgins Avenue, will install the plumbing in three residences to be built at 4512-24 North Monticello Avenue.

W. Hayes, of 5740 Chicago Avenue, has recently secured the plumbing contract for plumbing four flats to be built at 1516-18-20-24 South Fifty-eighth Street.

A. S. Cameron & Co., of 6921 North Clark Street, will install the heating equipment in an apartment building to be erected at 5100-06 Kenmore Avenue.

The Robinson Furnace Co. will install the heating system in a six-flat building to be erected at 4004-06 Warwick Avenue.

Michigan

Detroit.

Thieves entered the residence of Homer S. Johnson, vice-president and general manager of the Penberthy Injector Co., Monday, December 15th, and stole considerable jewelry and silverware, valued at over $1,200. Mr. and Mrs. Johnson live at 145 Boston Boulevard and at the time were out motoring. The thieves entered the house by a front window, which they raised by "jimmying" it and breaking the lock. The house was ransacked as far as the burglars had time. To carry away the loot, the burglars used one of Mr. Johnson's suit cases.

Plans are completed for the new 18-story building to be erected at Woodward and Grand Circus park by the Whitney Estate. The architects are D. H. Burnham & Co., at 80 East Jackson Boulevard, Chicago. They are now receiving bids. The building will cost $1,000,000, and will have stores on the ground floor, also on the interior, which will be used in the form of an arcade. The upper floors will be for offices.

Detroit architects are preparing plans for a 200-room hotel to cost about $150,000 and to be built in Reading.

Pa. T. E. Flanigan, in the Hammond building, is treasurer of the hotel company.

George Dyer, of the Trenton Potteries Co., of Trenton, N. J., was in Detroit last week calling on the trade.

Architects Feldman & Seeler, Detroit, are taking figures on a block of three veneer stores and flats to be erected on Dubois Street, near Warren Avenue. Bids close December 24th.

Ellis Friedman has opened a plumbing and hardware shop at 3370 East Jefferson Avenue. The location is in the extreme eastern part of Detroit, which section is growing very rapidly on account of the number of large automobile factories in that locality.

J. E. Lee, now located at Woodward and Montcalm Streets, is erecting a building at 25 Henry Street, which is two stories high, and which he will occupy as soon as completed. It is the present intention of Mr. Lee to use the ground floor for his plumbing business and the upstairs for living apartments.

Architects Preston & Walker, 1913 Dime Bank Building, have plans in progress for a garage building to cost $10,000.

At a meeting of the Detroit Board of Health the past week, one of the members made a recommendation that all public lavatories be abolished, claiming that such lavatories are unsanitary and a menace to health. No action was taken in the matter.

Harrigan & Reid, one of the oldest and most successful plumbing and heating institutions in Detroit, have closed negotiations for the property at the northwest corner of First and Bagley Avenues, 80 by 100 feet in size, valued at $15,000, on which they plan to erect a four-story structure exclusively for their own need, their present quarters at State and Park Streets having become too small. Work on the new building is to start as soon as plans are completed.

Safecrackers opened a vault in the office of Ernst Bros., plumbing contractors at 37 Bagg Street, on December 10th, and succeeded in getting away with $1,300 in cash. Pay envelopes containing $1,000 were left behind. A one-inch hole was bored in the door near the combination and one of the tumblers broken. The door was then forced open. The key to the inner door of the vault was then taken from a desk drawer.

Other Cities in the State.

At a recent meeting of the Kalamazoo Branch No. 12 of the National Stationary Engineers' Association an address was delivered by Hon. Charles H. Farrell on "How to Heat an Office Building."

A new company in Milford has been organized under the style of Gittins & Son, to engage in the general hardware and plumbing business, the authorized capital stock being $10,000, all of which has been subscribed and paid in in property.

That the heating and ventilating system of the Tecumseh high school in Tecumseh is obsolete and should be replaced by a modern system was the gist of a report made by experts of a Toledo building firm engaged to examine the system. They estimated it would cost nearly $6,000 to install a modern system.

John Murray, 116 East Cortland Street, Jackson, will install a hot water system and plumbing in the $10,000 residence on Robinson Street, for Mrs. H. J. Porter, now in course of construction.

Thomas J. Shields, of Lansing, was awarded the plumbing contract for the $8,000 new residence of Lee Ballinger, on Main Street in that city.

Architects Osgood & Osgood, Grand Rapids, have plans in progress and will take figures this week for the erection of a new Police Headquarters building, 40 by 100 ft., four stories with basement.

Ohio

Cincinnati.—The Cincinnati Master Plumbers' Association has nominated the two following tickets to be voted on at the annual election on January 3. Regular ticket: President, Andrew J. Murphy; vice-president, Harry G. Franklin; secretary-treasurer, J. B. Laumann; sergeant-at-arms, H. W. Dressler; for Board of Directors, Thomas J. Dyer, Martin Daily, John A. Klasen, Ray J. Hillenbrand, A. J. Murphy and E. J. Nolan. The Independent ticket is as follows: President, John J. Vogelpohl; vice-president, Clifford Schlemmer; secretary-treasurer, J. B. Laumann; sergeant-at-arms, A. F. Biddle; and for directors, John Fern, J. C. Hill, William Doud, James Doyle and Edward B. Kleine. The business secretary with offices in the St. Paul Building is hard at work arranging the program for the coming convention of the Ohio Master Plumbers' Association, to be held at the Gibson House, Cincinnati, in February.

Lighting, plumbing and heating specifications will soon be ready for the $275,000 Y. M. C. A. which is to go up in Youngstown, O. Jackson, Rosecrans & Waterbury, of 1328 Broadway, New York, are making the plans for this improvement.

Massachusetts

Springfield.—Mayor John A. Denison has announced that he will sign a contract with George Smith & Co. for plumbing the new high school of commerce building. Suggestions that the bid of the Smith Company was too high led to a public hearing on the matter.

Upton.—The selectmen have placed the contract for a steam heating plant in the town hall building with Maurice Maroney, of Pascoag, R. I., who was the lowest of several bidders.

Palmer.—The question of the appointment of a plumbing inspector is being agitated in this town. The matter is expected to be put before the voters for discussion and action at the next town meeting. The town has never had a plumbing inspector.

Salem.—An interesting winter's program has been arranged for the members of the Massachusetts North Shore Association of Master Plumbers, the membership of which includes plumbers in this city, Beverly, Hamilton, Peabody and other cities and towns in that vicinity. Once a month the members of the association meet and spend part of the evening in an educational way and the remainder in a social manner. The December meeting will take the form of a Christmas tree for members and promises to be a novel affair. About February the association plans to have an interesting and instructive lecture on sanitary matters.

Charles Noble, of the firm of Noble, Milne & Co., plumbing contractors at Pittsfield, Mass., is recovering from a serious operation performed at the Hillcrest Hospital in that city on December 9th. The operation was for gall stones and was performed by Drs. Tracy and Taylor of the hospital staff.

Connecticut

Bristol.—Roberts & Arnold have the contract for plumbing in a two-apartment house to be erected on Pleasant Street, for William A. Hayes.

New Haven.—Plumbing and heating in a business building to be erected on Meadow Street, for Joseph Seph, will be done by William Keane & Son.

Ansonia.—Bids for the installation of plumbing in the Fourth, Elm, Grove and Holbrook Streets schools and also in the Hill school will soon be asked for by the board of education. The work is expected to cost about $8,000.

Bridgeport.—The store and tenement building being erected on East Main Street, for Louis Silverstone, is rapidly assuming shape. Joseph Mullins & Co. have the contract for the plumbing.

Waterbury.—Plumbing and heating in the new residence being erected in Watertown, for Mrs. Mary Merriman, is being done by the Barlow Bros. Co.

Waterbury.—The contract for heating a new double house being erected for Mrs. E. M. Burrall on State Street, has been placed with M. J. Daly & Sons, Inc., of that city.

Rhode Island

Pawtucket.—An ordinance looking toward the improvement of sanitary conditions in this city was proposed at a meeting of the local association of master plumbers at a meeting held December 1st. President Frank Davis was in the chair and a number of members discussed the subject of the evening, "House to House Inspection," from the floor. The speakers and other members of the association became so interested in their subject that the time slipped by with surprising rapidity and by the time the social part of the program and the collation had been gone through with it was midnight. It was the largest and most enthusiastic meeting that the association has held for some time.

Missouri

The city council of Kansas City, Mo., recently passed an ordinance authorizing the sum of $200,000 to be used for the purpose of erecting a new public bath house in View Valley Park, an improvement that will be thoroughly appreciated by everybody for blocks around this beautiful park.

The new "housing code," an ordinance recently passed by the city council of Kansas City, Mo., is another step towards the establishment of improved sanitary and scientific plumbing. This law is aimed particularly at the unscrupulous landlord who makes no provision for the health and welfare of his poor tenants in the tenement districts. The board of health welfare is also doing a great work along this line, making a house to house canvass to better conditions.

December 6th a contract was let for the building of a South Side school building at Kansas City, at a cost of $354,000. This is one of a great number of fine new school buildings that are now in process of construction.

Wisconsin

Milwaukee.

Building operations in Milwaukee during the past month were slightly in excess of those of the same month in 1912, the total permits issued during November representing operations amounting to $1,711,300. The total for the first eleven months of 1913 is $12,975,096, which amount is almost two millions less than during the record breaking year of 1912, when the total for the year was over fifteen millions. During 1912, however, there were two exceptionally large structures, the North-Western Life Insurance Building, costing two and one-half million, and the First National Bank Building, representing one and one-half million. All the building trades, including the plumbing and heating trades, have had plenty of work with the large amount of building going on.

Among the more recent contracts awarded Milwaukee plumbers and steam-fitters are the following:

Grassler & Gezelschap, Third Street, are installing the steam heating and power plant in the new plant of the Ambrosia Chocolate Co., on Fifth Street.

O. H. Dittmar, Fond du Lac Avenue, has among his contracts two new residences on the East Side, in one of which the L. J. Mueller Furnace Co., Reed Street, has the contract for the heating.

Louis R. Stollberg & Co., Third Street, installed the plumbing in the eleven-story Hotel Wisconsin, and recently completed the plumbing in a motion picture theater on Oakland Avenue, in which Theo. H. Baitner did the heating and ventilating work.

W. H. Halsey, Jefferson Street, numbers among his jobs the plumbing in the new $100,000 Mt. Sinai Hospital which has been started at Cedar and Twelfth Streets.

Dearsley Bros., Milwaukee Street, have a good many contracts, including the plumbing in a magnificent residence in the East Side residence section.

W. F. Adams, 314 National Avenue, has the plumbing in a duplex at Scott Street and Twenty-fourth Avenue, and G. Pflugradt, 979 Grant Street, the heating in the same building.

S. V. Hanley, Cambridge Avenue, who did the plumbing in the new Lefly Department store and the new Second Ward Savings Bank, has the plumbing in the new $100,000 Church of Christ, Highland Boulevard and Twenty-seventh Street. The Industrial Heating Co. will install the heating and ventilating system.

Wenzel & Henoch, 502 Twenty-seventh Street, who have several large contracts in county institutions and recently completed a forty-two apartment contract on Grande Avenue, has the plumbing, heating and ventilating in two new apartment houses at Prospect Avenue and Webster Place, costing $70,000.

A. Wittmann, 1617 Vliet Street, has the plumbing in a new business building at 1605 Vliet Street. E. Diel, Cherry Street, is doing the plumbing in a business block on East Water Street, in which the Downey Heating Co. is supplying the heating and ventilating.

Schumann & Luebke, of Third Street, number among their work the plumbing in a new East Side residence and in the new Washington Park Presbyterian Church.

Hanley-Casey Co., of 404 West Ohio Street, Chicago, is completing the plumbing, heating and ventilating work in the new First National Bank Building, East Water and Mason Streets.

Other Cities in the State.

West Allis.—Polacheck & Johnson, 6611 Greenfield Avenue, Milwaukee, were successful bidders on the plumbing in addition to the city hall here.

Mineral Point.—Penhallegon & Dunn have a crew at Montford installing plumbing and heating in three residences.

Alma.—C. G. Knopse has the heating contract in a residence at Alma Bluff, and one in the town of Lincoln and another in a residence here.

Marshfield.—Alex Mettelka recently secured the contract to extend the heating system into the addition at the Blodgett warehouse and a contract to alter the heating system in the Armory.

Clinton.—H. F. Dallman has the contract for installing a steam heating system in the new city hall being erected here.

Marshfield.—Wm. Kalsched has the plumbing and steam heating contract in a new residence at Stratford. He also has the contract for a steam heating plant in a garage here.

Whitewater.—Trautmann & Horne are installing the plumbing in the Stewart business block on Main Street, which is being remodeled.

Racine.—William Liegler, who is also a local alderman besides one of the progressive local plumbers, recently secured a contract to install the plumbing and sewerage in a residence at Corliss.

Kewaunee.—Dishmaker Bros. are installing a steam heating system in the Farmers and Merchants State Bank Building, replacing the old boiler and radiators.

Minnesota

St. Paul.

Herman Nelson has moved his plumbing business from the old location on Front Street to 647 Selby Avenue. His new quarters were occupied for a good many years by R. J. Chenery, one of the St. Paul's early settlers in the plumbing business. Mr. Nelson has had a very successful year in the plumbing and heating line, among some of the jobs he has on hand at the present time are: Plumbing and hot water heating for John Peterson at 2007 Laurel Avenue and 1470 Charles Street, a new dwelling for Gust Newlander at 1102 Kilbourne Street; plumbing and heating in a new store and flat building at 1036 Front Street; plumbing and heating for A. Myberg, 1017 Kilbourne Street, for J. J. Flannagan at 2047 Selby Avenue, for G. Sullivan, 2041 Selby Avenue, for Leo Keppel at 1194 Goodrich Avenue, Henry Lott at 1849 Lincoln Avenue, a duplex flat for L. P. Story at 1847 Lincoln Avenue, and at 665 Simon Avenue for Gust Johnson.

John J. Bailey, 440 Jackson Street, has been awarded the contract for plumbing and hot water heating in a new residence for Max Marks at 1129 Portland Avenue, and in the Fink flat building on Dayton Avenue.

J. D. Hyland, 198 West Third Street, has been awarded both the plumbing and steam heating contracts in a six story building being erected at East Sixth and Jackson Streets by Northwestern Realty and Improvement Co. He has also started work on the plumbing and steam heating in the Illinois Steel Plant at Midway.

Paul Chapel, 189 West Third Street, was the successful bidder on the plumbing contract in the new Christian Church being erected at Summit and Avon Streets. Mr. Chapel is also installing the plumbing in the remodeled four-story building at 232 East Fourth Street for Druck Bros.

M. J. O'Niel, 60 East Sixth Street, is installing four new bath rooms in the T. W. Hill residence at 260 Summit Avenue. He also was awarded the plumbing contract in the new Service Building for the State Hospital, at Anoka, Minn.

Schnaith Bros., of 439 East Seventh Street, were the successful bidders on both the plumbing and hot water heating in a duplex flat building for J. L. Roy, being erected in Macalester Park.

J. P. Manning, formerly located at South St. Paul, has moved his business to St. Paul and is now located at 339 East Winnefred Street. Mr. Manning is installing two plumbing and hot water heating jobs at Somerset, Wisconsin, and a plumbing and hot water heating plant at Yangden, Minn., for T. J. Daly.

Nels Olsen, 932 Forest Street, has been awarded the plumbing in an eight-flat building being remodeled by Sylvester Bros., at 875 Reaney Street.

Wm. Wehy, of 600 East Lawson Street, is installing the plumbing in the Nieman store and flat building at East Seventh and Reaney Streets.

Washington

Seattle.

An analysis of the records compiled by R. H. Ober, building inspector, shows that the city of Seattle is making a steady gain as compared with corresponding months last year. In only four months during the current year have the totals fallen below those for the same months a year previous, and these, with one exception, were comparatively small differences. The total amount of building from January 1, 1913, to November 1st, exceeds the totals for the same months during 1912 by $1,294,925, which places Seattle safely in the position of having done much more in the building line by the end of the year than was done last year.

One feature that has marked activities this year is the substantial character of the residence and business structure constructed, the average cost being higher than in the past. While there is but a moderate amount of building being started at this time, there is evidence of preparation for some extensive construction work to be inaugurated in the early spring. A few of the larger contracts which have recently been let for both building and plumbing in the city follows:

C. R. Aldrich, Central Building, has been awarded the contract for building a brick and mill construction store to cost $30,000 on the corner of First Avenue and Seneca Street for the Walker Estate. The Rautman Plumbing & Heating Co., 617 Fourth Avenue, received the award for plumbing. The contract for heating has not been let. Bebb & Mendel, architects, Denny Building, prepared the plans.

Architect Warren H. Milner, Arcade Building, is receiving bids for the construction of a theater at 1112 Sixteenth Avenue, near Seneca Street, for the Alaska Theater Co. The proposed structure will cost $150,000. Bids for both plumbing and heating will be received by the architect shortly.

The Graff Construction Co., of Central Building, recently commissioned Architect H. Ryan, Northern Bank & Trust Building, to prepare plans for a combination vaudeville and moving picture theater to be built on First Avenue,

near Pike Street. Figures for the general contract and for sub-contracts including plumbing and heating will be received the first of the new year.

Spokane.

The conditions in the building line in Spokane are decidedly better this fall than they were one year ago. This is indicated in several ways; architects and contractors (building, plumbing and heating), attest a better tone, and the building permits issued by the building department conclusively prove the above assertion. For the first ten months of the current year, the permits aggregated more than $1,000,000 in value over the permits for the entire year of 1912, and the amount of work in sight for the remainder of 1913, promises to augment the total to a large extent. During the month of October the building inspector's office issued 78 permits, valued at $140,340. A large share of the work represented in this year's building remains to be performed. On the thirteen-story Davenport Hotel, and the 9-story Welch Building, as well as other large structures construction work will continue through the winter.

Tacoma.

W. Scott Snyder, building inspector, reports that many more building permits were issued during October, 1913, than during October last year, but the valuation of these permits were but $138,223 as compared with $189,273 for the month a year ago. The work done during the past month consisted largely of repairs to residences and miscellaneous work, few large structures being started. However, the leading architects look upon the immediate future with much optimism, taking their cue from the fact that there is an unusual number of inquiries from prospective builders, many of these being for apartment houses and hotels.

Small work, notably residences, is giving the architects' offices something to keep busy on at this time, but they are looking for heavy building early in the spring. In spite of the quiet tone that has reigned in building lines for some time past, the total valuation of the permits issued this year, up to November 1st, exceeds the valuation of the permits for the same period last year by $790,843. This year bids fair to make a far better showing at the end of twelve months than last year.

J. E. Bonnell was low bidder for the construction of the Stadium High School gymnasium, his figures being $62,997. The contracts for heating and plumbing have not yet been awarded.

The School Board of Tacoma, Wash., is expected to let the contract for the electrical work in the Lincoln High School building in that city within a few days. The estimated cost of the work is $12,000.

Anacortes.

Anacortes is experiencing a building boom, and contractors are riding on the wave of prosperity. Plumbing and heating contractors of the city report excellent business.

S. D. Temple will build a business block on Sixth Street, between O and Commercial Avenues. The building will be 600x100 feet. Plans for this structure are being prepared at this time.

Captain J. A. Matheson is building a new modern business block, and Trafton & Palmer are building a one-story business building at Tenth and Commercial Avenues. Work is progressing on the fireproof theater, being erected on the corner of Seventh and Commercial Avenues, through the winter.

Oregon

The city of Portland, Ore., is taking bids for standpipes, hose and reels for a number of school buildings.

Camp & DuPuy, architects of Portland, Ore., are taking figures on equipment for a natatorium to be built at Bay Ocean, Ore. The equipment will include boilers and a 350-horsepower engine, with electrical apparatus to light the entire district, a wave-motion machine, intake pumps of 600 gallons per minute capacity, and heating equipment.

The low bid for rebuilding the State Normal School here was submitted by Bartlett, Roth & Co., of Portland, Ore., amounting to $267,025. The low bids for plumbing, heating and electric wiring were above appropriations, and the plans will be revised to bring bids within estimates. Bids for plumbing were as follows: Ben Olson Co., Tacoma, $15,282; Arnold-Evans Co., Spokane, $26,000; Edward McCaffery, Spokane, $13,547; James Smyth Co., Spokane, $16,000; P. J. Coff, Spokane, $13,350; M. Isbister Co., Spokane, $14,189; William B. Coffee Plumbing Co., Tacoma, $14,369. Ben Olson Co., Tacoma, at $23,000, submitted the lowest bid for heating and ventilating. Other bids were: Inland Heating & Plumbing Co., Spokane, $29,203; Arnold-Evans Co., Spokane, $25,392; Blair-Meagher, Co., Spokane, $25,398; James Smyth Co., Spokane, $24,500; M. Isbister Co., Spokane, $24,984.

California

San Francisco and Vicinity.

San Francisco showed a slight increase in building values for November over the preceding month, but the record is still very much below that of last year, and it is hardly expected that this month will bring much improvement, as December is ordinarily rather quiet. Records in most other Pacific Coast cities show a sharp decrease, both from October and from November, 1912; the totals at Los Angeles, San Diego and Oakland being lower than those of the same month last year by over 50 per cent. At the same time a further decrease in bank clearings is noted in practically all business centers of the coast.

With fair weather so far this month, plumbers have been able to make better progress than during November on work under way, and a few good-sized contracts have come out in various parts of the Coast. On the whole, however, plumbers and jobbers alike complain of dull business. This is partly due to the usual reluctance to place important contracts just before the holidays, but more to the fact that it is almost impossible to borrow money for building purposes of any kind. It is reported that one local project of some importance has been temporarily abandoned for this reason, and a number of others are held up. The trade nevertheless maintains a confident attitude in regard to the coming year, and a number of improvements are being made by both plumbing contractors and supply houses.

The pipe business continues in poor shape all round. The supply houses have succeeded in reducing their stocks to very small compass but have so far shown no disposition whatever to replenish their supplies, and their current purchases are about as small as they ever have been. This is a marked contrast to the condition of a

year ago, when many of them were buying supplies for six or eight months in the future.

A rather neat bit of salesmanship was carried off a week or so ago, by which the greater part of a 60-mile pipe line order for the town of Riverside, Cal., was secured for Matheson joint pipe. Alternate bids had been taken for cast iron and riveted steel pipe, and a Los Angeles firm expected to get the contract on the basis of riveted steel. So sure were the low bidders of the business that they let the matter rest, and meanwhile a representative of the National Tube Company went down from the San Francisco office, explained the merits of the Matheson joint pipe, and make a figure which took the greater part of the business.

An announcement of some interest to the trade this week was to the effect that John G. Sutton, president of the John G. Sutton Co., and for many years a prominent plumbing, heating and electrical contractor, had been selected to fill the office of vice-president and general manager of the Ocean Shore Railroad, a concern which has in the last few years developed a large tract of country along the coast south of San Francisco. Mr. Sutton has been one of the most popular of the directors of this road, in which he is largely interested, and it is expected that his influence will aid materially in carrying out financial plans which are now being developed. For several months Mr. Sutton has taken no active part in the management of the John G. Sutton Co., the general supervision of the business being in the hands of Wm. P. Scott, vice-president and general manager, while the plumbing department is in charge of Mr. Doherty. It is now announced that Mr. Sutton will retire from the presidency of the company the first of the year.

The annual meeting of the San Francisco Master Plumbers' Association on December 5th passed off with little excitement, all the old officers being re-elected.

The Ladies' Auxiliary of the San Francisco Master Plumbers' Association has about completed arrangements for a Christmas tree party, to be given on the evening of December 27, at which a large attendance of the local plumbers and their families is expected.

The new store of the Morris Stulsaft Co., with its large display of Kohler goods, is now complete. The walls and floor have been treated in harmonious color effects, setting off the display of fixtures to the best advantage, and several completely equipped bathrooms have been fitted up offering attractive suggestions to prospective builders.

Bids were received for the construction of the new Marshall school building in San Francisco. Twelve bids were received for the plumbing and eleven for the heating and ventilating. No awards have yet been made.

The new quarters are being occupied by Wm. F. Wilson Co., on Mason Street, near Geary, in an apartment house building which was recently built by Mr. Wilson.

The Exposition Co. is now taking figures on the construction of the main entrance tower, separate figures being taken on sewer work, water piping, wiring, etc.

The James Roche Co., of Colusa, Cal., has recently added a department for the manufacture of galvanized cornice, skylights and other sheet metal work of a nature that has in the past been handed over to Sacramento and San Francisco contractors.

H. E. Darrow, who has been connected with the plumbing business of J. M. Pruden, of Sawtelle, Cal., has bought out the plumbing business of C. V. Feavitt of that city, and will move the shop into new quarters.

The Fillmore Manufacturing & Hardware Co., of Fillmore, Cal., which manufactures a line of heating specialties, has employed R. D. Woodward to take charge of the mechanical end of the work. Mr. Woodward has been for the last four years in the employ of the International Harvester Co.

The city of Pasadena, Cal., is in the market for 4,000 ft. of 4-in. lap-weld pipe, dipped, and 4,000 ft. of ¾-in. standard butt-weld pipe.

The town of Tropico, Cal., is making estimates on a municipal water system, and plans to use cast-iron pipe throughout.

The city of San Diego is developing plans for a "civic center" group of buildings, at an estimated cost of $600,000.

Plans have been completed for a new hotel to cost $350,000 to be erected by the Central & Pacific Improvement Association at the corner of Pico and Main Streets, Los Angeles.

A new Normal School building is to be erected at Fresno, Cal., at a cost of approximately $370,000. General plans have been made for a building with a frontage of 400 feet and a depth of 250 feet. The plumbing, heating and ventilating are yet to be decided on. The money for the building has already been appropriated.

The Machinery & Electrical Co., of Los Angeles, is preparing to put in a stock of heating and ventilating machinery and furnaces at Phoenix, Ariz. The company has leased a warehouse at Fifth and Jackson streets, Phoenix.

Improvements costing about $11,000 have been recommended by the engineer for the sewage disposal plant of the College Park Sanitary District, at College Park, Cal.

The Public Service Commissioners of Los Angeles, Cal., are advertising for bids for furnishing the city with waterworks, plumbing and similar supplies for the year 1914.

The town of Lemoore, Cal., has ordered the purchase of a new pump and motor for use in connection with the municipal septic tank.

New figures are being taken for the remodeling of the Bakersfield, Cal., city hall, including separate bids for plumbing and heating.

The Native Sons are having plans drawn for a new building at Sacramento, in which a complete heating and ventilating plant will be installed.

One of the largest contracts recently let at Los Angeles was for the Roslyn Hotel. Thomas H. O'Brien secured the contract for plumbing, sewer, gas and water piping, at $65,500.

Plans of Architects Stone & Wright have been accepted for a two-story school building at Stockton, Cal., the heating plant and toilet facilities of which will be placed in a separate building.

The Robinson Hardware Co., of Gilroy, Cal., which has this year made a specialty of the manufacture of irrigation pipe, is preparing to install a lot of labor-saving machinery and build a new warehouse.

Fred Johnson, of the Union Hardware & Plumbing Co., of San Luis Obispo, Cal., left a few days ago for Elko, Nev., where he is to be married. Before returning he will make a trip with his bride to the Hawaiian Islands.

R. L. Davidson, formerly of St. Joseph, Mo., is opening a plumbing and electrical shop at the new town of Culver City, near Los Angeles.

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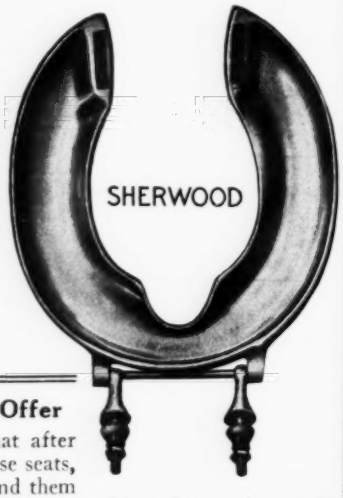

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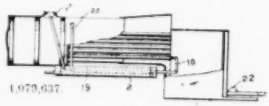
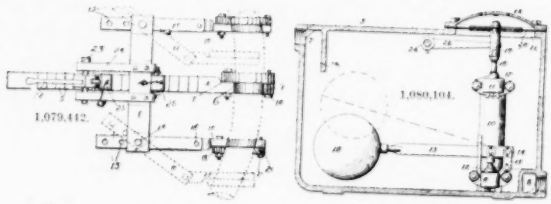
Patents

Heating Department.

1,079,637. Steam-heating system. Thomas W. Cooper, Buckhead, Ga. The combination with a boiler, smoke stack, fire box and feed tank of a locomotive steam engine, of a coil radiator mounted in the feed tank, a scaled casing for said radiator, a force pump mounted within said feed tank and connected with the lower terminal of said sealed tank, a cylindrical casing arranged on each side of said locomotive, a steam pipe of each cylindrical design connected at one terminal with the exhaust pipe of the steam chest and at its other terminal with the smoke stack, said pipe coiled within said cylindrical casings, a second steam pipe connected with one of said first steam pipes within one of said cylindrical casings at one terminal and at its other terminal to the lower coil of said coil radiator, a water pipe connected at one terminal with the upper portion of said sealed casing and at its other terminal with said boiler, said water pipe directed through one of said cylindrical casings, the fire tubes of said locomotive, the fire box and finally through the other of said cylindrical casings and into said boiler and a force pump adapted to force the water from said feed tank through said water pipe.



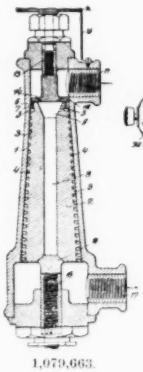


1,079,442. Pipe-bending Machine. Caleb C. Rutledge, Alvord, Tex. In a pipe shaping machine, a base, a shaping member movable longitudinally on the base, a pipe receiving member mounted on the forward end of the said member, fulcrum members pivoted on the base, fulcrum jaws hinged on the forward ends of the fulcrum members and keepers hinged and fastened to the fulcrum jaws, said jaws and keepers having beveled pipe receiving faces.

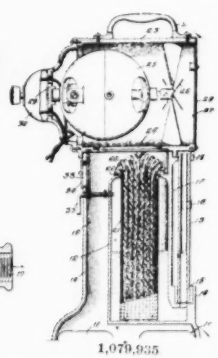
1,080,104. Steam-heating Apparatus. James Logan Fitts, Merchantville, N. J., assignor to Warren Webster & Company, a Corporation of New Jersey. In a steam heating system, the combination of a return pipe of low vacuum, a return pipe of high vacuum, and a governing mechanism between the return pipe of low vacuum and return pipe of high vacuum comprising a closed chamber for receiving the air and water of condensation from the return pipe of low vacuum, a valved communication between the low and high vacuum return pipes arranged within the chamber at a point above where the water of condensation collects and acting as the sole means for the escape of the air from the chamber, means oper-

ated by the low vacuum in the chamber for controlling the valved communication, and separate means controlled by a float substantially independent of the vacuum conditions for delivering the water of condensation received in the chamber from the low vacuum return into the high vacuum return.

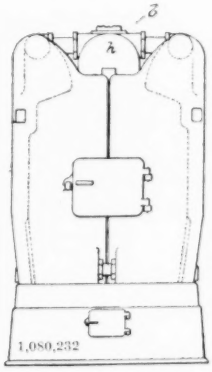
1,079,663. Blow-off Valve for Steam-heated Apparatus and the like. Friedrich Raffensdorfer, Grunberg, Silesia, Germany, assignor to The Firm of Heinrich C. Sommer, Nachfolger, Dusseldorf, Germany. In a blow-off valve for steam-heated apparatus, the combination, with a casing having an inlet at one end and an outlet at the other end thereof, of a fitting therein bearing against the walls of the casing, said fitting having a spiral groove in the periphery thereof forming with the walls of the casing a duct of a comparatively small cross-section that cross-section increasing from the inlet end of the fitting toward the outlet end, the said fitting having a longitudinal central bore, a valve disk for closing the inlet end of said bore, and a valve disk for closing the outlet end of the same.



1,079,663.



1,079,935



1,080,232

1,079,935. Humidifier. Clarke S. Drake, Milwaukee, Wis. In a device of the character described, a hollow base forming an air passage, openings in the bottom of the base leading to the air passage, a liquid receptacle contained within the base, a wick in the liquid receptacle for conveying the liquid therefrom to the air passage, a casing mounted on the base and having an open end, and an electric fan locater therein and drawing air from the air passage and discharging it through the open end of the casing, there being an opening in the casing opposite the fan.

1,080,232. Boiler. Richard D. Reed, Westfield, Mass. A boiler comprising a base, a boiler section arranged above said base and supported thereon, a main supply header secured to said boiler section, an inlet chamber at the lower end thereof, a continuous circulation chamber formed in said boiler section and header, one or more sectional water jackets substantially increasing the fire surface of said boiler section, connections between the upper ends of said jackets and said main supply header; a fire pot, combustion chamber and flues formed in part by said boiler section.

1,080,607. Pipe-wrench, Robert L. Underwood, Denver, Colo. A pipe-wrench, comprising a jaw-block provided with shank and handle openings extending therethrough, said handle opening terminating in an enlarged jaw opening on the pipe-receiving side of said jaw-block and spaced from the marginal edges of the latter leaving smooth marginal pipe-receiving portions thereon, said jaw opening terminating at its rear in a socket bearing in close proximity to said shank openings, a threaded

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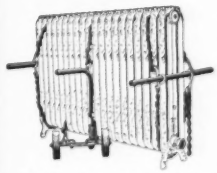

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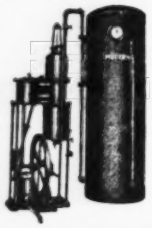

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GRAPHITE PIPE JOINT COMPOUND

Is water-proof, acid-proof, gas-proof and a perfect protection to pipe threads.
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Jersey City **New Jersey**

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should have no Floats controlling it, as the Floats crack and become water logged from the great changes in temperature. The Pump bearings should not be lubricated by the water pumped as the hot condensation water will cause them to expand and stick

Write for our latest Catalog D describing how a condensation pump should be built to be reliable.

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Manufacturers of *Turbine House and Bilge Pumps, Sewage Ejectors and Electric Cellar Drainers.*

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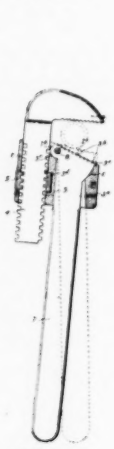
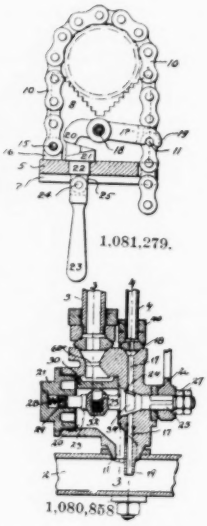
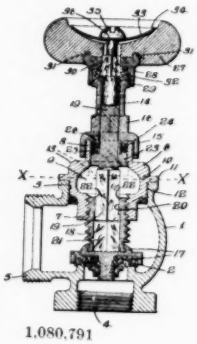
C. H. FOSTER
14 Princeton Ave. **ST. LOUIS, MO.**

shank adjustably mounted in said shank opening and carrying an overhanging jaw, and a handle extending through said handle opening and provided with a jaw having a cylindrical pivot bearing portion seated in said socket bearing, said last mentioned jaw having a free but limited movement in said jaw block and being retracted within the latter when moved to a pipe releasing position thereby bringing said smooth marginal pipe receiving portions in contact with the pipe, the flare or inclination of said portions facilitating a new adjustment on the latter for the next engagement of the same by the wrench.


1,080,607


1,081,279.

1,080,858


1,080,791

1,081,279. Pipe-vise, Frank W. Hedden, Jersey City, N. J. In a pipe-vise and the like, the combination with a hose having pipe holding jaws, and a pipe engaging chain thereover having link-pins, of a lever pivotally supported between said jaws and having one end engaging said chain, a solid faced cam having a single helical step journaled with its face upward in the top of said base, the other end of said lever bearing fully and acting directly against the upper face of said cam, said cam being capable by a partial rotation of exerting a thrust against the lever sufficient to draw the chain the distance between its adjacent link-pins whereby pipes of various sizes placed in the jaws are gripped.

1,080,858. Radiator-valve, Wilhelm Staby, Ludwigshafen-on-the-Rhine, Germany. The combination of a main steam pipe, a radiator, a steam connection leading from said main steam pipe to said radiator, a water connection leading from said radiator to said steam pipe, a connection leading from said water connection to the atmosphere, and a unitary valve structure provided with means for simulating closing said steam and water connections against said main steam pipe and opening said water connections to the atmosphere.

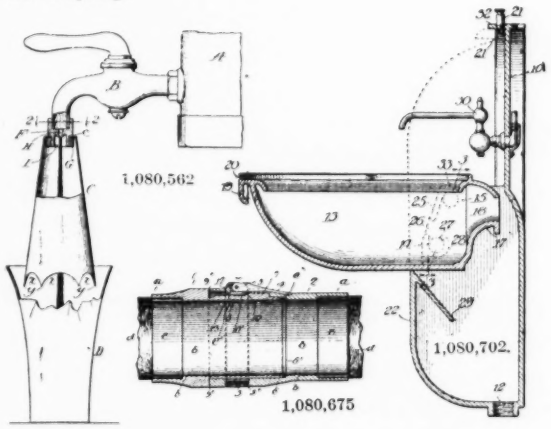
1,080,791. Valve, Claude T. Trinder, Manlius, N. Y. In a valve, a casing including a body formed with a valve seat, the casing comprising a neck having a passage aligned with the valve seat the neck also having oppositely facing bearing surfaces, a valve head coacting with the valve seat, a stem consisting of a single member for co-operating with the valve head and extending through the passage, spaced apart bearing rings encircling the stem and coacting with the stem and said oppositely facing surfaces, the periphery of the lower bearing ring also coacting with the casing, a part mounted on the

outer end of the stem connected thereto to permit slight endwise relative movement of said part and the stem, said part having a bearing upon the end and the periphery of the upper bearing ring, and a spring mounted on said part and connected to the stem to pull upwardly on the stem, and press downwardly on said part and clamp the bearing rings against said oppositely facing surface, substantially as and for the purpose described.

Plumbing Department.

1,080,562. Sanitary attachment for faucets, Charles Edmund Kells, jr., New Orleans, La. The combination of a faucet and a sanitary shield adapted to be attached to the mouth thereof and to surround the water flowing therefrom made of stiff rigid material and having openings or recesses at its lower edge with intervening sharp points or edges and the length of which between the lower edge of the mouth of the faucet and the bottom of the shield is considerably greater than the width of the shield at its lower edge, being thus so shaped that the hand or finger of the user cannot be inserted so far into it as to come in contact with the mouth of the faucet.

1,080,675. Threadless hose-coupling, Peter Berg, Enderlin, N. D. An improved threadless hose coupling having, in combination, a spigot member constructed with a circumferential main shoulder, a plurality of peripheral spiral projections extending toward said shoulder and constructed with shoulders inclined with reference to said main shoulder; and a socket member having spiral recesses in its socket wall fitted to said spiral projections, and provided with a rotatable locking ring having internal projections forming inclines matching said inclined shoulders and interacting therewith to tighten and lock the coupling.



1,080,702. Lavatory, Thomas A. Legge, Chicago Ill., assignor to The Adams & Westlake Company, Chicago, Ill., a Corporation of Illinois. In a device of the class described, in combination, a pair of side walls each having an instanding flange at its forward edge a basin adapted to enter between the flanges and having at each side a pair of studs, one above the other, and a socket back of each flange for receiving the lower one of a pair of the studs, each flange being interrupted to permit the entry of the studs in assembling the parts.

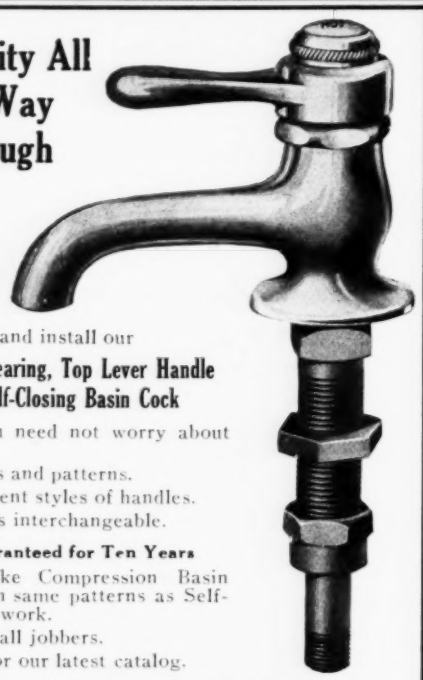
1,081,281. Curb-box, Clarence E. Tyler, Newark, N. J., assignor to S. E. T. Valve & Hydrant Company, New York, Inc., New York, N. Y., a Corporation of New York. A curb-box open at the top and provided with a lower extension adapted for a pipe connection, a raised annular rib rising from the floor of the box around the

¶ I'd rather stay at home
and play,
With drum and sword
and soldiers gay,
I hate to say a piece
today
But I'm goin' to—

Merry Christmas

Pittsburg Water Heater Company

Quality All the Way Through



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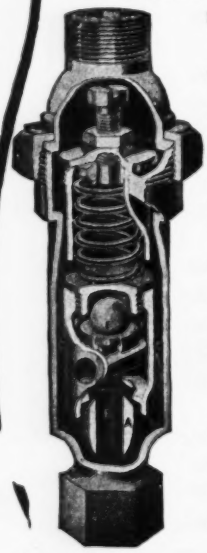
The installation of a "B" Heat Intensifier means more heat at less cost.



It costs less to install because less pipes, fittings, and radiation surface are required. The "B" Heat Intensifier raises the temperature of the water, putting more heat units in each square foot of radiation.

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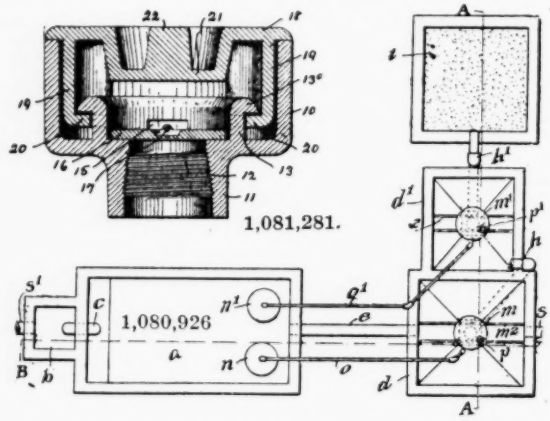
pipe opening, said rib having lateral flanges spaced apart from each other, said rib also being provided with drainage openings therethrough, and a cover adapted to lie on the top of the box, said cover having depending flanges spaced apart and provided with inturned portions adapted to drop between the aforesaid rib flanges and then be turned into locking engagement with said flanges.

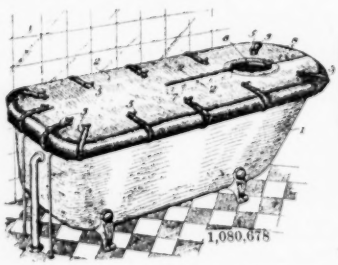


1,081,281.

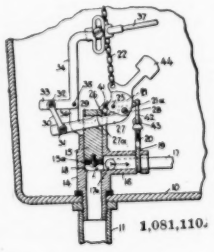
1,080,926.

1,080,926. Method of treating sewage, Albert Priestman, Philadelphia, Pa. The herein described method of treating sewage to precipitate and remove sludge, which consists in allowing the denser part of the sewage to remain for comparatively long periods in a settling tank to precipitate the solid matter in suspension, discharging the denser portions of the sludge from the bottom of said portion of the sewage in relatively small uniform quantities at regular intervals in relation to the flow of the sewage to or from the apparatus, and supplying fresh sewage to the top of such portion.

1,080,678. Vapor-bath apparatus, Alvina Brueggeman, St. Louis, Mo. An apparatus of the character described comprising a sheet having pockets disposed around its marginal edge, slotted clamping hooks slidingly arranged in each of said pockets, and a clamping bolt passing through the walls of the pockets and the sheet and through the slots in said clamps to adjustably hold the clamps in position.



1,080,678



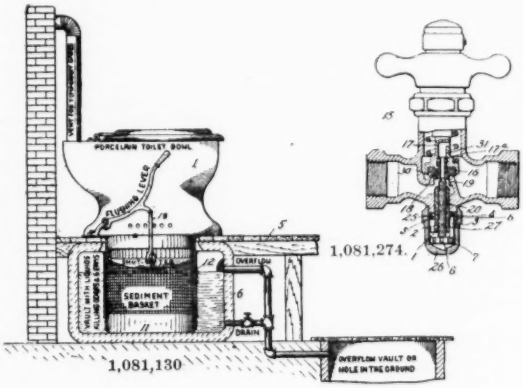
1,081,110.

1,081,110. Flushing device, Nicholas Joseph Gondolf, New Orleans, La. In a device of the character described, a float, a fitting having an inlet, a main outlet and an auxiliary outlet, a main valve commanding the main outlet and having movements the reverse of the main valve, a valve actuating device movable in one direction independently of the float, a manually-controlled means for moving said actuating device in said one direction, a connection between the said actuating device and the auxiliary valve, a member connected with the said actuating device and engaging the main valve, and means connected with the float and said member to move the

latter in the opposite direction from the manually-controlled means.

1,081,130. System of closet sanitation, Eugene L. Miller, Portland, Ore. In a device of the character described, a tank containing decomposing liquids said tank open at the top, a receptacle placed in said opening and reaching to the bottom of the tank, said receptacle having screens adjustably fixed so as to vary the height of the receptacle to suit the height of the tank, a shutter mechanism pivotally fixed in said receptacle, manually operated means for opening and closing said shutter, said means extending above the tank and having a resilient member for normally retaining said shutter in closed position.

1,081,274. Device for controlling the flow of fluid, Phillip Mueller and Anton C. Schuermann, Decatur, Ill., assignors to H. Mueller Mfg. Co., Decatur, Ill, a Corporation of Illinois. A stop-cock formed with a port and a valve for controlling said port having a by-pass therethrough combined with a screw-valve threaded in the body of the cock to choke said port, a needle valve within



said screw valve to control said by-pass, and means on said body detachably engaging said screw and needle valves for locking the same in different points of adjustment.

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A Perlmutter and Potash of real life were standing at the entrance to the Palmer House the other day boasting to each other of their prowess as salesmen.

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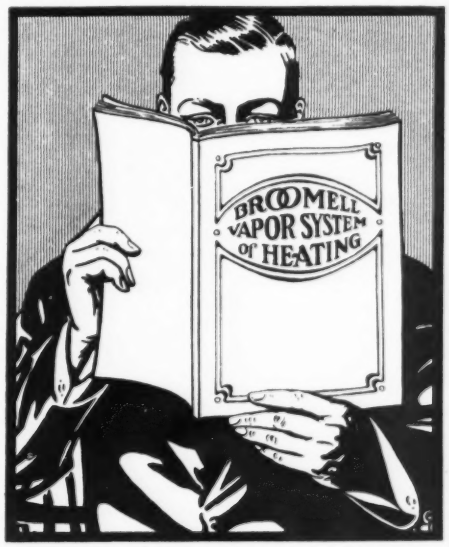

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